SITE PLAN REVIEW TECHNICAL ADVISORY COMMITTEE
PORTSMOUTH, NEW HAMPSHIRE

CONFERENCE ROOM A
CITY HALL, MUNICIPAL COMPLEX, 1 JUNKINS AVENUE

Members of the public also have the option to join the meeting over Zoom
*(See below for more details)**

2:00 PM **March 7, 2023**

AGENDA

I. APPROVAL OF MINUTES

A. Approval of minutes from the February 7, 2023 Site Plan Review Technical Advisory Committee Meeting.

II. OLD BUSINESS

A. **REQUEST TO POSTPONE** The application of **Banfield Realty, LLC, (Owner)**, for property located at **375 Banfield Road** requesting Site Plan review approval to demolish two existing commercial buildings and an existing shed and construct a 75,000 s.f. industrial warehouse building with 75 parking spaces as well as associated paving, stormwater management, lighting, utilities and landscaping. Said property is shown on Assessor Map 266 Lot 7 and lies within the Industrial (I) District. (LU-20-259) **REQUEST TO POSTPONE**

B. The request of **Pease Development Authority (Owner)**, for property located at **80 Rochester Avenue** Site Plan approval for the construction of a ±209,750 SF advanced manufacturing building including ±18,145 SF of office space, two (2) parking areas, two (2) loading dock areas, minor realignment of a portion of Rochester Avenue, and associated site improvements consisting of underground utilities, landscaping, lighting, and a stormwater management system. Said property is shown on Assessor Map 308 Lot 1 and lies within the Pease Industrial District (PI). (LU-22-210)

C. The request of **Pease Development Authority (Owner)**, for property located at **80 Rochester Avenue** requesting lot line adjustment to add 22,251 square feet to the existing lot as part of a realignment of Rochester Avenue for a proposed lot size of 496,584 square feet (11.4 acres). Said property is shown on Assessor Map 308 Lot 1 and lies within the Pease Industrial District (PI). (LU-22-210)

III. NEW BUSINESS

A. The request of and **Thomas E**, **Marybeth B, James B,** and **Meegan C. Reis (Owners)**, for property located at **305 Peverly Hill Road** requesting redevelopment of the property including the addition of two new dwelling units for a total of three units with associated site improvements. Said property is shown on Assessor Map 255 Lot 5 and lies within the Single Residence A (SRA), Single Residence B (SRB) and Natural Resources Protection (NRP) Districts. (LU-23-18 and LU-22-251)

IV. OTHER BUSINESS

V. ADJOURNMENT

https://us06web.zoom.us/webinar/register/WN_ed1Kf23yQJG32-UTimM61g

SITE PLAN REVIEW TECHNICAL ADVISORY COMMITTEE
PORTSMOUTH, NEW HAMPSHIRE

CONFERENCE ROOM A
CITY HALL, MUNICIPAL COMPLEX, 1 JUNKINS AVENUE

2:00 PM **February 7, 2023**

MINUTES

MEMBERS PRESENT: Peter Stith, Chairperson, Principle Planner; David Desfosses, Construction Technician Supervisor; Patrick Howe, Deputy Fire Chief; Shanti Wolph, Chief Building Inspector; Peter Britz, Environmental Planner; Nicholas Cracknell, Principal Planner;; Zachary Cronin, Assistant City Engineer, Eric Eby, Parking and Transportation Engineer

MEMBERS ABSENT:

ADDITIONAL STAFF PRESENT: Stefanie Casella, Planner 1; Kate Homet, Associate Environmental Planner; Peter Rice, Director of Public Works; Todd Henley, Recreation Director

*Items in brackets denote timestamp of recording []

The meeting began at 2:02 p.m.

I. APPROVAL OF MINUTES

A. Approval of minutes from the January 3, 2023 Site Plan Review Technical Advisory Committee Meeting.

[7:14] P. Howe made a motion to approve the minutes as presented. P. Britz seconded the motion. The motion passed unanimously.

II. OLD BUSINESS

A. REQUEST TO POSTPONE The application of **Banfield Realty, LLC, (Owner)**, for property located at **375 Banfield Road** requesting Site Plan review approval to demolish two existing commercial buildings and an existing shed and construct a 75,000 s.f.

industrial warehouse building with 75 parking spaces as well as associated paving, stormwater management, lighting, utilities and landscaping. Said property is shown on Assessor Map 266 Lot 7 and lies within the Industrial (I) District. **REQUEST TO POSTPONE** (LU-20-259)

[7:23] Chairman Stith announced that Banfield Realty, LLC requested a postponement for this month..

B. The request of **Frederick J. Bailey III & Joyce Nelson (Owners)**, and **Tuck Realty Corporation (Applicant),** for properties located at **212, 214, and 216 Woodbury Avenue** requesting Preliminary and Final Subdivision Approval for a Lot Line Relocation to create the following lots: Proposed Lot 1 to be 60,025 square feet of lot area where 26,012 square feet are existing, Proposed Lot 2 to be 12,477 square feet of lot area where 29,571 square feet are existing, and Proposed Lot 3 to be 7,917 square feet of lot area where 24,836 square feet are existing. No changes in street frontage are proposed. Said properties are located on Assessor Map 175 Lots 1, 2, and 3 and lie within the General Residence A (GRA) District. (LU-22-129)

[7:41] Chairman Stith noted that Old Business items B and C would be read into the record together.

C. The request of **Frederick J. Bailey III & Joyce Nelson (Owners)**, and **Tuck Realty Corporation (Owner and Applicant),** for properties located at **212 Woodbury Avenue** requesting Site Plan Approval for the construction of an eight-unit condominium development consisting of four (4) single living-unit structures, two (2) two-unit structures, 18 parking spaces where are 13 required, and associated stormwater, utility and site improvements with access to the development from Boyd Street. Said properties are located on Assessor Map 175 Lot 1 and lies within the General Residence A (GRA) District. (LU-22-129)

SPEAKING TO THE APPLICATION

[9:18] Joseph Coronati of Jones and Beach Engineering represented this application on behalf of Tuck Realty Corp. He noted that their team had been in receipt of stormwater and staff comments. He proceeded to address each staff comment:

1. Domestic and fire services must be shown entering each building at an appropriately location

Mr. Coronati noted this.

2. Please explain how the previous clay core comment has been satisfied.

This comment had been added to Sheet D4 after back and forth with Altus Engineering.

3. A Conditional Use Permit will need to be filed for the highway noise district.

This will be done prior to the Planning Board.

PUBLIC HEARING

[11:08] Chairman Stith opened the public hearing for this application. No one spoke. The hearing was closed.

DISCUSSION AND DECISION OF THE BOARD

[11:41] D. Desfosses made a motion to recommend approval of this proposal to the Planning Board with the following condition:

1. DPW will review and approve the locations of domestic and fire services lines entering all buildings.

The motion was seconded by Z. Cronin. The motion passed unanimously.

D. The request of **Pease Development Authority (Owner)**, for property located at **80 Rochester Avenue** Site Plan approval for the construction of a ±209,750 SF advanced manufacturing building including ±18,145 SF of office space, two (2) parking areas, two (2) loading dock areas, minor realignment of a portion of Rochester Avenue, and associated site improvements consisting of underground utilities, landscaping, lighting, and a stormwater management system. Said property is shown on Assessor Map 308 Lot 1 and lies within the Pease Industrial District (PI). (LU-22-210)

[12:36] Chairman Stith noted that Old Business items D and E would be read into the record together but noted that they would not be taking item E into consideration for the moment.

E. The request of **Pease Development Authority (Owner)**, for property located at **80 Rochester Avenue** requesting lot line adjustment to add 22,251 square feet to the existing lot as part of a realignment of Rochester Avenue for a proposed lot size of 496,584 square feet (11.4 acres). Said property is shown on Assessor Map 308 Lot 1 and lies within the Pease Industrial District (PI). (LU-22-210)

SPEAKING TO THE APPLICATION

[2:07] Neil Hansen and Patrick Crimmons of Tighe and Bond were present for this application as well as Mike Mates of the Pease Development Authority. Mr. Hansen went on to address each staff comment:

1. 3rd party traffic review did not address concerns with proposed crosswalks across New Hampshire Ave. Based on projected traffic volumes and width of crossings, additional safety measures could be warranted if speeds are in excess of 35 MPH. Crosswalks are not usually warranted if less than 20 pedestrians per hour during peak pedestrian hour.

This was run by the traffic group which noted that based on Federal guidelines, their data shows the 85th percentile speeds between 37 and 40 mph and the average daily traffic volume of up to

5,000 vehicles. Based on Federal Highway Administration guidelines, enhanced crosswalk and warning signs should be provided but an RFP would not be required. They do not anticipate pedestrian volumes at over 20 people per hour. This will be detailed further in the traffic review.

2. Consider a hydrodynamic separator prior to storm water entering the detention chambers.

They have received approval from NHDES for pre-treatment systems.

3. Provide estimated average daily and peak water usage.

There is currently no identified end user but they will provide an update on this information when an end user is identified.

4. Do not connect sewer service into existing structure2041; install new structure upstream from existing proposed connection. Show 8" clay Lee St sewer line entering SMH 2041

They will make this revision.

5. The sewer main in Rochester St between and including manholes 2041 (Lee St Intersection, labeled incorrectly as 2135 on plan) 253' north to SMH 2114 (not shown on plan set, please add) is in poor condition and needs to be replaced. The applicant will need to work with Public Works to replace this section of main and the two manholes so that it is fit for use.

They will include this in the next submission along with a note.

6. Identify waste stream characteristics (types of waste to be discharged and concentrations)

Again, there is no identified end user so this information cannot be provided at this time.

7. This is a large manufacturing facility. Any potential food preparation area for employees will require grease trap if applicable.

They are not anticipating any food service at this site. If they do, they will include this prior to construction.

8. Verify that this development adheres to all stormwater requirements as stated in the Site Plan Review Regulations Chapter 7. Section 7.6.2 states that developments over 15,000 square feet of area require advanced stormwater treatment standards consistent with the NH MS4 Stormwater Permit and N.H Code of Administrative Rules Part Env-Wq 1507.03.

The Pease Development Authority regulations supersede those of Chapter 7 and they have just submitted an alteration of terrain permit.

9. Please label Lee St and Aviation Ave on plans

Will include.

10. Do not install new electric conduit, pads, equipment within 5' of the existing sewer main or drainage pipes

Will revise.

11. Label Newfields St and Stratham St on plan set. Both are shown to be milled with overlay, neither are in the condition that solution would be acceptable. Both need reconstruction via reclamation, fortification with 2" angular crushed stone and new pavement just like Rochester St.

Will revise.

12. There is a telephone manhole in the tip down of the north driveway. Raise to grade. Add the telephone lines to the plan to be certain to avoid conflicts underground

See Utility Note #14. Telephone lines will be added to the plan.

13. Truncated dome plates are not to be used when the sidewalk system crosses driveways. Only when crossing roads.

They will remove.

14. Eliminate old drainage structures (CB's) and add DMH's on the main pipe at all pipe junctures during Rochester St narrowing.

Will revise.

15. Raise all structures encountered to finish grade.

See Utility Note #14.

16. There is no existing VGC to meet/match to. It is <u>all</u> old concrete curb to be replaced.

Will revise.

17. On site sidewalks do not need to meet the 5.5' wide standard unless it is desired.

They will keep for consistency.

18. The 4 post indicator valve posts along Rochester St are remnants of old water services that are likely still active and that need to be terminated at the main by the Contractor. Coordinate with Portsmouth Water and show removal on demo plan.

Will add a note.

19. It looks like the guy pole across from Lee St is on top of the sewer line. Pole may need relocation to affect sewer repairs.

This will be called out on plans and a contractor will verify.

20. Relocate the proposed sidewalk on Newfields St so that the pole is not in the sidewalk.

Will revise.

21. There is a tree across from Lee St that is supposed to remain but is not accounted for in the grading plan.

The plan is to remove this tree.

22. There's two additional CB's on Rochester near Lee St (west side, south and north of Lee St) that are not shown.

Will revise.

23. Replace all old curb inlet (tombstone style) CB grates to type B

Will do.

24. See Underwood's comment about proposed future parking and drainage and please address.

The impervious area was included in their calculations and was referenced in their response.

[23:13] The applicant was asked about the hydrodynamic separator unit and the placement of the separator.

PUBLIC HEARING

[24:46] Chairman Stith opened the public hearing.

[25:05] Mark Fougere, a planner from the Town of Greenland, New Hampshire, spoke on behalf of the Town of Greenland. He expressed concern about added traffic strains to Route 33 and the flawed analysis of the traffic study. He would like to be included in future discussion of this project and would like to see a copy of the peer-reviewed traffic study.

[27:15] Chairman Stith closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

[28:05] P. Britz made a motion to postpone the application to the March meeting. D. Desfosses seconded the motion. The motion passed unanimously.

III. NEW BUSINESS

a. The request of **Lucky Thirteen Properties LLC** (Owner), for property located at **147 Congress Street** requesting Site Plan review approval for a 700 square foot addition, front and rear canopies and associated offsite and onsite improvements. Said property is shown on Assessor Map 126 Lot 4 and lies within the Character District 5 (CD5) and Historic District. (LU-22-192)

SPEAKING TO THE APPLICATION

[28:53] Eric Weinrub of Altus Engineering, Mike Labrie, the property owner, Sarah Howard, the architect, Andrew Wilson and Louis Hamel of OJ Building Company came to present this application.

Mr. Weinrub gave a brief description of the project and revealed that it had already received HDC approval. He went on to address staff comments:

1. Verify there are no sewer facilities or fixtures connected to the drain system or drainage pipe.

No new utilities would be needed for this project.

2. Restaurant will require 1,000 gallon grease trap per City standards.

They will be providing a 750 gallon interior grease trap in the basement.

3. Please explain how the parking lot side doors work.

The confusing depiction of these doors is the result of a drawing error.

PUBLIC HEARING

[33:33] Chairman Stith opened the public hearing for this application. No one spoke. The public hearing was closed.

DISCUSSION AND DECISION OF THE BOARD

[35:37] Z. Cronin made a motion to recommend approval of this application to the Planning Board with the following conditions:

1. *Applicant will work with the Building Department to appropriately size and locate the grease trap.*
2. *DPW is to observe and approve that sewer and stormwater systems are separated properly.*
3. *Excavation permit will be needed for the construction of the sidewalk*

N. Cracknell seconded the motion. The motion passed unanimously.

b. The request of **Lucky Thirteen Properties LLC (Owner)**, for property located at **361 Islington Street** requesting Site Plan review approval for the redevelopment of the existing property including a 695 square foot addition and a 73 square foot addition with associated site improvements including lighting, utilities, landscaping, and stormwater treatment/management, and a Conditional Use Permit approval in accordance with section 10.1112.14 of the Zoning Ordinance to allow twelve (12) parking spaces where twenty-two (22) are required. Said property is shown on Assessor Map 144 Lot 23 and lies within the Character District 4-L2 (CD-4-L2) and Historic District. (LU-22-195)

SPEAKING TO THE APPLICATION

[38:48] Mr. Weinrub gave a brief overview of the site and the different proposals it had seen in the past. He noted that the proposed bagel shop would bring vitality to that corner of the neighborhood. They previously received HDC approval and multiple reliefs from zoning impacts.

[43:30] Mr. Weinrub went on to address the staff comments:

1. *Verify that this development adheres to all stormwater requirements as stated in the Site Plan Review Regulations Chapter 7.*

They will be incorporating low impact development measures among others that will address this section.

2. Show separate connections for domestic 1" water and 4" fire services

The plans indicate two services on the Utilities Plan, only one line is shown but a note clarifies that it will be two separate services.

3. Why the crushed stone paths? Can they be stone dust instead?

The stone dust may have more of an impact to sediment buildup in the filtration and stormwater infrastructure. They can remove the connectors between these two areas and change it to hardscape.

4. Drainage main in street is PVC. Use 12x18 inserta tee and 12" pvc to connect to PCB1, connect to pipe squarely

Will revise.

5. Abandon old water at main. (There are 3-3/4" taps feeding the existing service).

Will revise the plans to show this.

6. There should be a 6" sewer service already installed for this lot under Cabot St. Reuse this connection if at all possible. Records show two laterals were installed for this lot. One for the gas station and one for the 8" line.

They will get in touch with Jamie McCarty about this.

7. Remove cage and burlap entirely from trees.

Will revise and add a note.

8. Please keep lighting under 12' if possible, if not verify that 14' pole will not be a nuisance to abutters.

Likely will not change this but it was looked at for abutter concerns.

9. Turning paths show vehicles hitting retaining wall in back of site, and touching curbing and sides of driveway at other locations. The building addition should be modified to allow more travel lane area behind building or the travel lane should be dead-ended so as not to have vehicles attempt to drive behind the building.

The retaining wall will be moved back (to the north) by another foot to accommodate this.

10. CUP for parking assumes patrons will park at Foundry Garage or use alternate transportation. The use of the Foundry Garage is unlikely if this is the primary destination. While it is likely that there will be a higher amount of pedestrian trips, two-wheeled transportation is not a year-round option. With the recent concerns by residents and businesses regarding parking in the surrounding neighborhood, it is highly advisable for the applicant to have a way to provide additional off-street parking in close proximity to the site, to alleviate the fears of overcrowding of local street parking spaces, if the on-site parking proves to be inadequate.

The Foundry Garage would only be intended for employees to park at, not customers. Also, the spots for two-wheeled vehicles will likely be used year round and the applicants feel as though they meet the parking CUP requirements.

[57:42] Concerns raised by TAC members included the crushed stone in some areas which should be changed to groundcover, the safety of patrons eating under the canopy in connection to cars on the street and entering and parking onsite. Another concern was the material placed under bicycle racks which should not be crushed stone but rather a hard surface.

PUBLIC HEARING

[1:06:35] Chairman Stith opened the public hearing for this application.

[1:07:43] Elizabeth Bratter of 159 McDonough Street spoke on this application. She noted that any improvement to this space would be gladly welcomed by the neighborhood residents. She expressed concern for the disturbance of the lot and it's relatively small size. She noted the difficulty trucks would have turning on the property, especially in winter, and expressed concern for the existing tree health, the size of outdoor seating, the limited parking, ventilation, noise, utilities and grease traps.

[1:17:45] Chairman Stith closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

[1:17:56] Staff asked questions on the specifics of the expected delivery van sizes, noted the storage of snow over the grease trap, asked for clarification on hours of operation, expressed the need for a sprinkler system and concluded that a Conditional Use Permit would be required for outdoor dining.

[1:22:31] P. Britz made a motion to recommend approval to the Planning Board with the following conditions:

1) Plans are updated to show separate connections for domestic 1" water and 4" fire services.
2) Crushed stone paths will be updated to be either hardscaped or landscaping.
3)12x18 inserta tee and 12" PVC will be used to connect the drainage main in street to PCB1.
4) A note will be added to the plan to abandon old water service at the main.
5) Applicant will work with DPW to get locations of the existing sewer main in Cabot St.
6) Plans and notes are revised to show cage and burlap will be removed entirely from tree plantings.
7) Plans and notes are revised to show all lighting on site will be dark sky compliant.
8) Applicant will revise the plans to move rear retaining wall 1 foot towards the rear boundary line and modify trash/tote enclosure to create functional traffic circulation around the back of the structure. DPW Transportation Engineer to review and approve.
9) Plans and notes are revised will be revised to indicate bike parking racks will be on a hard scaped surface.
10) Plans will be revised to add additional protection (bollard, planter or something similar) between canopy seating and vehicle parking spaces.

D. Desfosses seconded the motion. The motion passed unanimously.

c. The request of **Brandon Kunkel (Applicant)** and **The City of Portsmouth (Owner),** for property located at **305 Greenland Road** requesting Site Plan review approval for the construction of a 19,500 square foot skateboard park including walkways and a 25 space parking lot with associated site improvements. Said property is shown on Assessor Map 241 Lot 18 and lies within the Municipal District (M). (LU-23-7)

SPEAKING TO THE APPLICATION

[1:27:18] Brandon Kunkel from Weston & Sampson came to present this application on behalf of the City of Portsmouth. He gave a brief overview of the location and its current use as a staging area for construction work. He continued on to address staff comments:

1. Confirm existing catch basin to be reset, can accept additional 12" HDPE pipe.

Their civil engineer confirmed that it can accept that additional 12" pipe.

2. Show all electric connections to cabinet, either conduit or overhead.

They will show all the connections on the plan which will be conduits and all of the utility poles with their associated numbers.

3. Run curbing to gate to discourage illicit access.

This will be extended just beyond the gate to ensure that people are not driving around the gate.

4. CONTECH CDS unit should be moved immediately downstream of existing CB to be reset. It is intended to provide treatment to this development as well as the main road.

This will be moved.

5. Modify detail 4/L501 Dense Graded Stone pavement with 8" of the same capped with 4" of pavement millings to be provided by the City to be placed, graded and compacted by the Contractor. Include the entire area around the basin that resides in the area currently shown in that "hammerhead" and we will just expand the lot a bit so the drain is in the area being cleared off of snow if necessary. Level out the entire area for the turnaround so there are no "edges" off the parking field and therefore people can just drive off and turn around.

This will be done.

6. Verify that this development adheres to all stormwater requirements as stated in the Site Plan Review Regulations Chapter 7. Section 7.6.2 states that developments over 15,000 square feet of area require advanced stormwater treatment standards consistent with the NH MS4 Stormwater Permit and N.H Code of Administrative Rules Part Env-Wq 1507.03.

The design does adhere to these requirements. Between the Contech device, the swale along Greenland Road, and the City's use of organic land management, nitrogen levels should be properly managed in any stormwater.

7. At the end of the conduit, in the location of the "future cabinet" mark the end of the conduit with a marking post.

This will be done.

8. The City will need 2 – 5" conduits run from pole (currently unlabeled, please label with pole #) on the right side of the driveway to the area marked for future "cabinet" so a pad mounted transformer can be installed next to this future cabinet. End the 2 – 5" conduits approximately 14' from the end of the 6 – 3" conduit so there is enough space for both the transformer 6'x6' pad and the future cabinet 3'x6' pad placed neatly in line with the edge of the driveway about 12' back from the edge of the driveway.

They have added these in the plans.

9. Remove the burlap entirely from the proposed trees.

A note will be added to the plans.

10. Increase the driveway corner radius to 30 feet on the east side of the driveway to allow for larger vehicles to access the site for future maintenance and development of the site.

This will be done.

11. Please add more seating areas around the outside of the park for those who do not wish to enter the park area.

Benches will be added that are placed on concrete pads.

12. Please add bike racks

These will be added over by the accessible parking area.

13. Please explain the layout of the parking lot

The gravel turnaround hammerhead design was scrapped and has since been converted into a square gravel lot at the end of the parking lot.

14. Will bathroom facilities be available? If so, where will they be located and how will they be maintained? Will they be accessible?

Port-a-johns will be available in the area between the skate park and the parking lot.

15. Please explain how the flow of traffic will work inside the park including beginner areas, spectating areas, and crossing into the middle shaded section.

There will be asphalt-paved sidewalks that are ADA compliant, there will be a pavilion, seat wells, etc.

16. Will there be security fencing around the park perimeter?

[1:43:10] Currently there are none intended.

17. Are the accessibility requirements being met with regards to providing an accessible route and multiple viewing areas?

The park designer is aware of accessibility requirements and they assume the designer is meeting those but the designer could be included in future meetings/presentations if needed.

[1:40:13] Staff brought up issues with the proposed flush edging of the sidewalk, noting that the guardrail should be extended between the sidewalk and the parking lot.

[1:41:57] A question was also raised about access to the future rail trail which would be connected by an extended sidewalk at the proposed skate park.

[1:44:48] The issue of ambulance access was raised and it was suggested that the proposed handicap spaces be moved outwards to expand the hashed no-parking zone size for ambulance access.

PUBLIC HEARING

[1:47:55] Chairman Stith opened the public hearing for this application.

[1:48:06] Andy Sherburne of 1821 Islington Street raised his concern with the entrance and exit of the proposed site, citing how dangerous the road already is and the potential safety issues with children and young adults entering and leaving the park. He also expressed issues with the limited parking availability, including the future need for rail trail parking and the proposed drainage plans for the pond.

[1:56:13] Michael and Taylor Mandrioli of 1877 Islington Street spoke on the limited parking issue and also raised concerns about the potential hours of operation of the skate park and how that could impact lighting and access to the site after-hours. He also raised concern for his own property next door and would like to see fencing along the east side of the park and some sort of sound-proofing measure.

[2:00:54] Chairman Stith closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

Staff raised concerns over the limit of parking onsite as well as the entry and exit of the park and the lighting, wishing to see lighting plans which would include hours of lighting as well. Staff would not recommend two lanes of traffic (right-turn & left-turn) for exiting the park. There were also concerns over water quality issues but those could be addressed internally.

[2:03:14] Todd Henley, Recreation Director, addressed some of those concerns by noting that a lighting project will be separate from this application but that it was forthcoming. The usual lighting schedule for City parks would include lighting until 10 p.m. each night. Also, the upcoming paving of the rail trail would encourage more skate park users to come by means other than cars via the rail trail which would reduce parking needs.

[2:09:04] P. Britz made a motion to recommend approval of this application to the Planning Board with the following conditions:

1. Plans and notes are revised to show conduit connections to the cabinet.
2. Plans and notes are revised to show extended curb to discourage vehicles from driving around the access gate.
3. Plans and notes are revised to show CONTECH CDS unit immediately downstream of the existing catch basin (CB to be reset).
4. Plans and notes are revised to modify detail and profile for gravel parking lot to reflect that the City will be providing the recycled asphalt paving which will be placed by the contractor.

5. Plans and notes are revised to show mark at the end of the conduit in the location of the "future conduit."
6. Plans and notes are revised to indicate all burlap is to be removed completely from proposed tree plantings.
7. Plans and notes are revised to show driveway corner radius is 30 feet on the ease side of the driveway.
8. Plans and notes are revised to add more seating areas around the outside perimeter of the park.
9. Plans and notes are revised to add bike racks.
10. Plans and notes are revised to indicate guardrail to be moved to separate parking area and walkway.
11. Applicant will work with the Fire Department to ensure adequate emergency vehicle access.

N. Cracknell seconded the motion. The motion passed unanimously.

[2:09:41] Z. Cronin made a motion to adjourn. N. Cracknell seconded the motion.

IV. OTHER BUSINESS

V. ADJOURNMENT

The meeting adjourned at 4:06 p.m.

Respectfully submitted,

Kate E. Homet
Secretary for the Technical Advisory Committee

Tighe&Bond

P0595-015
February 23, 2023

Mr. Peter Britz, Director of Planning and Sustainability
City of Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Site Review Permit & Subdivision Applications**
Proposed Advanced Manufacturing Facility

Dear Peter:

On behalf of Aviation Avenue Group, LLC, we are pleased to submit the following information to support a request to the Planning Board for a recommendation for approval to the Pease Development Authority (PDA) for Site Plan Review and Subdivision for a proposed Advanced Manufacturing Facility on a previously developed site located at 80 Rochester Avenue:

- One (1) full size & one (1) half size copy of the Site Plan Set, last revised February 23, 2023;
- Three (3) full size & one (1) half size copy of the Subdivision Plan, last revised February 23, 2023;
- One (1) copy of TAC Comment Response Report, dated February 23, 2023;
- One (1) copy of the Response to Traffic Engineering Peer Review Comments letter, dated February 17, 2023;
- One (1) copy of the Traffic Impact Assessment, last revised February 17, 2023;
- One (1) copy of the Drainage Analysis, last revised February 23, 2023;
- One (1) copy of the Truck Turning Exhibits, dated January 25, 2023;
- One (1) copy of the Signed Eversource Will Serve Letter, dated December 6, 2022;
- One (1) copy of correspondence with Unitil; January 5, 2023

The proposed project is located at 80 Rochester Avenue which is identified as Map 308 Lot 1 on the City of Portsmouth Tax Maps. The proposed project is for the construction of a ±209,750 SF advanced manufacturing building including ±18,145 SF of office space, two (2) parking areas, two (2) loading dock areas, minor realignment of a portion of Rochester Avenue, and associated site improvements consisting of underground utilities, landscaping, lighting, and a stormwater management system.

There is approximately 196,665 SF of existing impervious area that is currently untreated before entering the municipal drainage system. The proposed stormwater management system has been designed to provide treatment for the existing impervious surface that is currently untreated and for ±161,130 SF of additional impervious that results from the proposed project as required by the PDA Site Plan Regulations.

On October 20, 2022, the PDA Board granted conceptual approval for the proposed project. The project was granted a variance from the Zoning Board of Adjustment (ZBA) for the front yard setback requirements at their meeting on November 15, 2022. Based on further coordination with the PDA, the project will also be seeking a variance from the ZBA for the rear yard setback requirements. This request is on the ZBA meeting agenda for February 28, 2023.

We respectfully request to be placed on the Technical Advisory Committee (TAC) meeting agenda for the March 7, 2023, meeting. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,
TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Vice President

Neil A. Hansen, PE
Project Manager

Copy: Aviation Avenue Group, LLC (via email)
Pease Development Authority

J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Report_Evaluation\Applications\City of Portsmouth\TAC\20230223_TAC Resubmission\TAC-Resubmission-2 Cover Letter.docx

PROPOSED ADVANCED MANUFACTURING FACILITY - TAC COMMENTS (2/07/2023) RESPONSE

80 Rochester Avenue (100 New Hampshire Avenue)
Portsmouth, New Hampshire
February 23, 2023

Prepared by: CML
Project # P0595-015

	Comment	**Response**	**Corresponding Plan Sheet #**
1	3rd party traffic review did not address concerns with proposed crosswalks across New Hampshire Ave. Based on projected traffic volumes and width of crossings, additional safety measures could be warranted if speeds are in excess of 35 MPH. Crosswalks are not usually warranted if less than 20 pedestrians per hour during peak pedestrian hour.	See the City of Portsmouth Comment response on the enclosed Response to Traffic Engineering Peer Review Comments letter.	Enclosed
2	Consider a hydrodynamic separator prior to storm water entering the detention chambers.	The proposed project is meeting the pretreatment requirements via the use of off-line deep sump catch basins with oil/water separator hoods. The use of a hydrodynamic separator prior to entering the detention system and being treated by the proposed Jellyfish treatment unit is not needed to meet pretreatment requirements for this project.	
3	Provide estimated average daily and peak water usage.	The end user of the facility has not yet been determined, however the preliminary design assumption being used is 15,000 gpd. The applicant will be able provide a more accurate estimate of average daily and peak water usage to City once an the end user has been identified.	
4	Do not connect sewer service into existing structure2041; install new structure upstream from existing proposed connection. Show 8" clay Lee St sewer line entering SMH 2041	The plans have been revised to reflect this.	C-104
5	The sewer main in Rochester St between and including manholes 2041 (Lee St Intersection, labeled incorrectly as 2135 on plan) 253' north to SMH 2114 (not shown on plan set, please add) is in poor condition and needs to be replaced. The applicant will need to work with Public Works to replace this section of main and the two manholes so that it is fit for use.	The plans have been revised to reflect this.	C-104
6	Identify waste stream characteristics (types of waste to be discharged and concentrations)	The end user of the facility has not yet been determined. The applicant will be able provided this information to City prior to construction when an the end user has been identified.	
7	This is a large manufacturing facility. Any potential food preparation area for employees will require grease trap if applicable.	There are currently no plans to have any food preparation areas within the facility requiring a grease trap. The applicant acknowledges that if this changes additional review with the City will be required.	
8	Verify that this development adheres to all stormwater requirements as stated in the Site Plan Review Regulations Chapter 7. Section 7.6.2 states that developments over 15,000 square feet of area require advanced stormwater treatment standards consistent with the NH MS4 Stormwater Permit and N.H Code of Administrative Rules Part Env-Wq 1507.03.	As the project is a PDA project, it is not required to adhere to the City of Portsmouth Site Plan Review Regulations. However, the project is required to obtain an Alteration of Terrain (AoT) permit and is designed in accordance with the Env-Wq 1500.	
9	Please label Lee St and Aviation Ave on plans	The plans have been revised to reflect this.	SITE PLANS
10	Do not install new electric conduit, pads, equipment within 5' of the existing sewer main or drainage pipes	The plans have been revised to reflect this where possible, where electric and sewer are not required to cross.	C-104
11	Label Newfields St and Stratham St on plan set. Both are shown to be milled with overlay, neither are in the condition that solution would be acceptable. Both need reconstruction via reclamation, fortification with 2" angular crushed stone and new pavement just like Rochester St.	The plans have been revised to reflect this.	C-102
12	There is a telephone manhole in the tip down of the north driveway. Raise to grade. Add the telephone lines to the plan to be certain to avoid conflicts underground	See Utility Note #14, "Adjust all manholes, catch basins, curb boxes, etc. within limits of work to finish grade."	C-104
13	Truncated dome plates are not to be used when the sidewalk system crosses driveways. Only when crossing roads.	The plans have been revised to reflect this.	C-102.1 & C-102.2
14	Eliminate old drainage structures (CB's) and add DMH's on the main pipe at all pipe junctures during Rochester St narrowing	The plans have been revised to reflect this.	C-103.1 & C-103.2
15	Raise all structures encountered to finish grade	See Utility Note #14, "Adjust all manholes, catch basins, curb boxes, etc. within limits of work to finish grade."	C-104

16	There is no existing VGC to meet/match to. It is all old concrete curb to be replaced.	The plans have been revised to reflect this.	C-102.1 & C-102.2
17	On site sidewalks do not need to meet the 5.5' wide standard unless it is desired.	Acknowledged	
18	The 4 post indicator valve posts along Rochester St are remnants of old water services that are likely still active and that need to be terminated at the main by the Contractor. Coordinate with Portsmouth Water and show removal on demo plan.	The plans have been revised to reflect this.	C-101.1 & C-101.2
19	It looks like the guy pole across from Lee St is on top of the sewer line. Pole may need relocation to affect sewer repairs.	This has been noted on the plans.	C-101.2 & C-104
20	Relocate the proposed sidewalk on Newfields St so that the pole is not in the sidewalk.	The plans have been revised to reflect this.	C-102
21	There is a tree across from Lee St that is supposed to remain but is not accounted for in the grading plan.	This tree is to be removed. The "to remain" is referring to the utility pole adjacent to the tree. The note has been relocated to avoid confusion.	C-101.2
22	There's two additional CB's on Rochester near Lee St (west side, south and north of Lee St) that are not shown.	The plans have been revised to show the approximate location of these structures.	C-101 & C-103
23	Replace all old curb inlet (tombstone style) CB grates to type B	The plans have been revised to reflect this.	C-101 & C-103
24	See Underwood's comment about proposed future parking and drainage and please address.	The total impervious area in the drainage calculations account for these additional parking spaces.	ENCLOSED

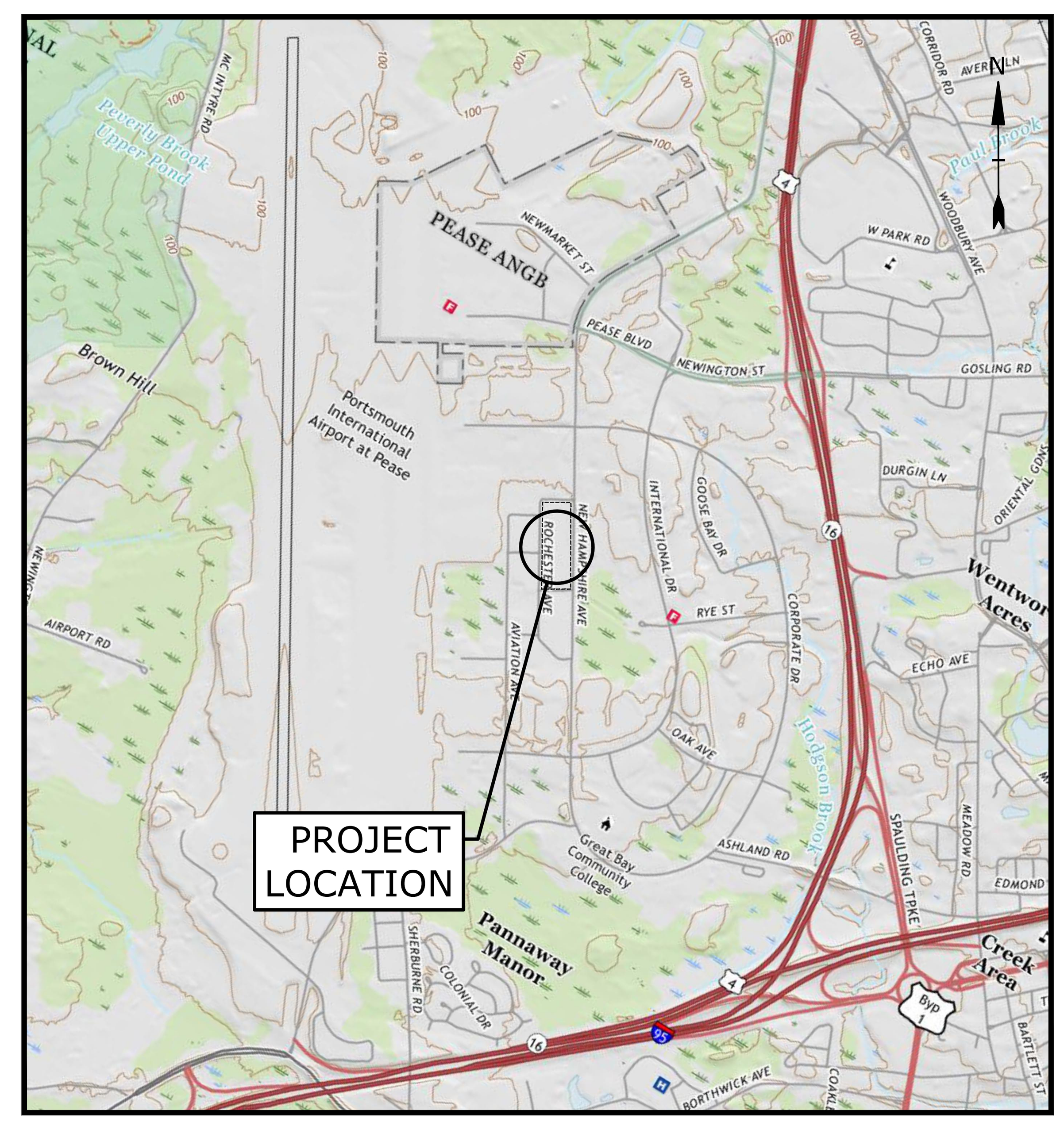
PROPOSED ADVANCED MANUFACTURING FACILITY

100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NEW HAMPSHIRE
PERMIT DRAWINGS

DECEMBER 10, 2022

LAST REVISED: FEBRUARY 23, 2023

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	02/23/2023
1 OF 8	EXISTING CONDITIONS PLAN	09/21/2022
2 OF 8	EXISTING CONDITIONS PLAN	09/21/2022
7 OF 8	EXISTING CONDITIONS PLAN	09/21/2022
8 OF 8	EXISTING CONDITIONS PLAN	09/21/2022
C-101	OVERALL EXISTING CONDITIONS / DEMOLITION PLAN	02/23/2023
C-101.1	EXISTING CONDITIONS / DEMOLITION PLAN	02/23/2023
C-101.2	EXISTING CONDITIONS / DEMOLITION PLAN	02/23/2023
C-102	OVERALL SITE PLAN	02/23/2023
C-102.1	SITE PLAN	02/23/2023
C-102.2	SITE PLAN	02/23/2023
C-103	OVERALL GRADING, DRAINAGE & EROSION CONTROL PLAN	02/23/2023
C-103.1	GRADING, DRAINAGE & EROSION CONTROL PLAN	02/23/2023
C-103.2	GRADING, DRAINAGE & EROSION CONTROL PLAN	02/23/2023
C-104	UTILITY PLAN	02/23/2023
C-105	OVERALL LANDSCAPE PLAN	02/23/2023
C-105.1	LANDSCAPE PLAN	02/23/2023
C-105.2	LANDSCAPE PLAN	02/23/2023
C-501	EROSION CONTROL NOTES & DETAILS SHEET	02/23/2023
C-502	DETAILS SHEET	02/23/2023
C-503	DETAILS SHEET	02/23/2023
C-504	DETAILS SHEET	02/23/2023
C-505	DETAILS SHEET	02/23/2023
C-506	DETAILS SHEET	02/23/2023
A1	PROPOSED EXTERIOR ELEVATIONS	12/12/2022
C-701	PHOTOMETRICS PLAN	02/23/2023



LOCATION MAP
SCALE: 1" = 2,000'

CONSTRUCTION NOTES:
1. THE CONTRACTOR SHALL NOT RELY ON SCALED DIMENSIONS AND SHALL CONTACT THE ENGINEER FOR CLARIFICATION IF A REQUIRED DIMENSION IS NOT PROVIDED ON THE PLANS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND FOR SITE CONDITIONS THROUGHOUT CONSTRUCTION. NEITHER THE PLANS NOR THE SEAL OF THE ENGINEER AFFIXED HEREON EXTEND TO OR INCLUDE SYSTEMS REQUIRED FOR THE SAFETY OF THE CONTRACTOR, THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND IMPLEMENTING SAFETY PROCEDURES AND SYSTEMS AS REQUIRED BY THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND ANY STATE OR LOCAL SAFETY REGULATIONS.
3. TIGHE & BOND. ASSUMES NO RESPONSIBILITY FOR ANY ISSUES LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION OF TIGHE & BOND.

PREPARED BY:
Tighe&Bond
177 Corporate Drive
Portsmouth New Hampshire, 03801
603.433.8818

STATE OF NEW HAMPSHIRE – PROFESSIONAL ENGINEER – PATRICK CRIMMINS No. 12378 LICENSED
2/23/23

STATE OF NEW HAMPSHIRE – PROFESSIONAL ENGINEER – NEIL A. HANSEN No. 15227 LICENSED
2/23/23

LESSOR:
Pease Development Authority
55 International Drive
Portsmouth, NH 03801
603.433.6088

SURVEY CONSULTANT:
DOUCET® SURVEY INC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

APPLICANT:
Aviation Avenue Group, LLC
210 Commerce Way, Suite 300
Portsmouth New Hampshire, 03801
603.427.5500

Last Save Date: February 23, 2023 10:45 AM By: CML
Plot Date: Thursday, February 23, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_CS.dwg Layout Tab: CS

811 DigSafe MA·ME·NH·RI·VT

COMPLETE SET 26 SHEETS

NOTES:

1. REFERENCE: PEASE HANGAR 227 AREA
(ENCOMPASSING PARTS OF NEW HAMPSHIRE AVE, AVIATION AVE, STRATHAM ST, ROCHESTER AVE, NEWFIELD ST, LEE STREET, & FLIGHTLINE ROAD IN PORTSMOUTH, NH)
D.S.I. PROJECT NO. 7239

2. OWNER OF RECORD: PEASE DEVELOPMENT AUTHORITY (ALL BUT ONE PARCEL)
55 INTERNATIONAL DRIVE
PORTSMOUTH NH 03801

NEW ENGLAND TELEGRAPH & TELEPHONE (MAP 308 LOT 6 ONLY)
NKA FAIRPOINT COMMUNICATIONS
770 ELM STREET
MANCHESTER, NH 03101

3. FIELD SURVEY PERFORMED BY DOUCET SURVEY LLC STAFF DURING JANUARY & FEBRUARY 2022 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R10 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

4. HORIZONTAL DATUM BASED ON NAD83(2011) NEW HAMPSHIRE STATE PLANE COORDINATE ZONE (2800) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK INCLUDING OBSERVATIONS ON PRIMARY AIRPORT CONTROL STATION PSM C AND PSM D.

5. VERTICAL DATUM IS BASED PRIMARY AIRPORT CONTROL STATION PSM C (NAVD88 ELEVATION = 78.70 AS PUBLISHED BY NATIONAL GEODETIC SURVEY).

6. JURISDICTIONAL WETLANDS DELINEATED BY TIGHE & BOND DURING DECEMBER 2021 IN ACCORDING TO THE:
   - US ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y–87–1 (JANUARY, 1987).
   - REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION (2012).
   - NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST (REGION 1). U.S. FISH AND WILDLIFE SERVICE (2013).
   - CODE OF ADMINISTRATIVE RULES. WETLANDS BOARD, STATE OF NEW HAMPSHIRE (CURRENT).
   - FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.0, 2016 AND (FOR DISTURBED SITES) FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4. NEHSTC (MAY 2017).

7. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY. WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.

8. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVED PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON–SITE.

9. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING; THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC. SEVERAL STRUCTURES SHOWN HEREON WERE INACCESSIBLE FOR INVERT MEASUREMENTS DUE TO WINTER CONDITIONS.

10. DUE TO THE COMPLEXITY OF RESEARCHING ROAD RECORDS AS A RESULT OF INCOMPLETE, UNORGANIZED, INCONCLUSIVE, OBLITERATED, OR LOST DOCUMENTS, THERE IS AN INHERENT UNCERTAINTY INVOLVED WHEN ATTEMPTING TO DETERMINE THE LOCATION AND WIDTH OF A ROADWAY RIGHT OF WAY. THE EXTENT OF (THE ROAD(S)) AS DEPICTED HEREON IS/ARE BASED ON RESEARCH CONDUCTED AT THE PEASE DEVELOPMENT AUTHORITY (PDA), NHDOT, PORTSMOUTH ENGINEERING DEPARTMENT, AND ROCKINGHAM COUNTY REGISTRY OF DEEDS. AN OFFICIAL AT PDA ADVISED DOUCET SURVEY THAT THEY HAVE PREVIOUSLY SEARCHED AND BELIEVE THAT THERE WERE NEVER ANY LAYOUT PLANS DEVELOPED FOR THE RIGHT–OF–WAYS AT PEASE. ROAD LAYOUTS FOR THE STREETS SHOWN HEREON WERE ALSO NOT FOUND AT NHDOT PROJECT VIEWER OR AT THE PORTSMOUTH CITY ENGINEERING OFFICES.

11. ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL. WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG–SAFE AT 1–888–DIG–SAFE.

12. AERIAL TOPOGRAPHY WAS CONDUCTED BY EASTERN TOPOGRAPHICS FROM IMAGES TAKEN DURING DECEMBER 2021 WITH A PHOTO SCALE OF 40 FEET. AERIAL MAPPING CONTOURS AND OBJECTS SHOWN WITHIN OBSCURED AREAS ARE APPROXIMATE AND SHOULD BE VERIFIED BEFORE USE FOR DESIGN & CONSTRUCTION PURPOSES.

13. THIS FIELD SURVEY WAS PERFORMED IN WINTER CONDITIONS WITH SNOW AND ICE COVER ON THE GROUND. A SITE CHECK IS RECOMMENDED IN THE SPRING TO ENSURE THE COMPLETENESS/ACCURACY OF THE INFORMATION SHOWN HEREON.

14. THIS PLAN WAS PREPARED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY / BOUNDARY SURVEY FOR THE COMPLETE SET OF TAX MAP AND LOTS SHOWN HEREON, AND IS SUBJECT TO SUCH FACTS AS SAID SURVEYS MAY DISCLOSE. THIS PLAN DOES, HOWEVER, ILLSTRATE THE BOUNDARIES OF THE FOLLOWING TAX MAP AND LOT NUMBERS PER THE REFERENCE PLANS INDICATED BELOW AND RECORD MONUMENTS RECOVERED BY THIS SURVEY:
    A. MAP 307 LOT 1 (PER REF. PLAN 3)
    B. MAP 307 LOT 2 (PER REF. PLAN 7)
    C. MAP 306 LOT 4 (PER REF. PLAN 12)

15. THE LOCATIONS OF THE VARIOUS RESTRICTED ZONES CALLED FOR IN REFERENCE PLANS 8, 9, 10, 12, AND 14 ARE SHOWN HEREON BASED ON COORDINATE VALUES PROVIDED IN THOSE PLANS AND/OR FEATURES SHOWN IN THOSE PLANS (E.G. MONITORING WELLS) THAT WERE LOCATED DURING THIS SURVEY.

REFERENCE PLANS:

1. "SUBLEASE BOUNDARY PLAN FOR PEASE DEVELOPMENT AUTHORITY – BUILDINGS 115 AND 116 – 31 ROCHESTER AVENUE – PEASE INTERNATIONAL TRADEPORT – PORTSMOUTH, N.H.: DATED NOV. 6, 1995 AND LAST REVISED (REV–2) ON 03/03/97 BY RICHARD P. MILLETTE AND ASSOCIATES.

2. "SUBDIVISION PLAN FOR 5, 7, 19, AND 21 HAMPTON STREET – PORTSMOUTH, NH – LAND OF PEASE DEVELOPMENT AUTHORITY LEASED TO EXECUTIVE AIRDOCK, LLC (A PORTION OF TAX MAP 310, LOT 0) HAMPTON ST. & AVIATION AVE. PORTSMOUTH, NEW HAMPSHIRE" DATED JULY 1, 2021 AND REVISED (REV–1) NOV 30, 2021 BY DOUCET SURVEY LLC

3. "ALTA/NSPS LAND TITLE SURVEY FOR CINTHESYS REAL ESTATE MANAGEMENT LLC (LESSEE) C/O THE KANE COMPANY AND PEASE DEVELOPMENT AUTHORITY (LESSOR) OF TAX MAP 307, LOT 1 – 68 NEW HAMPSHIRE AVE. PORTSMOUTH, NEW HAMPSHIRE" DATED DECEMBER 21, 2021 BY DOUCET SURVEY LLC.

4. "APPENDIX VI MUNICIPAL SERVICES AGREEMENT BETWEEN CITY OF PORTSMOUTH – TOWN OF NEWINGTON– AND PEASE DEVELOPMENT AUTHORITY EFFECTIVE AS OF JULY 1, 1998".

5. "SUBDIVISION PLAN 68 NEW HAMPSHIRE AVENUE"FOR LONDAVIA, INC. DATED 29–SEPT–1998 BY KIMBALL CHASE. R.C.R.D. PLAN 26777.

6. "SUBDIVISION PLAN – AIR CARGO FACILITY 139 FLIGHTLINE ROAD" DATED 20–FEB–1998 AND REVISED (REV–1) 26–OCT–98 BY KIMBALL CHASE. R.C.R.D. PLAN 26778.

7. "SUBDIVISON PLAN FOR LAND TO BE LEASED TO PAN–AM 14 AVIATION AVE. PEASE INTERNATIONAL TRADEPORT PORTSMOUTH, NH" LAST REVISED (REV–3) ON AUG. 26, 1999 BY EMANUEL ENGINEERING, INC. R.C.R.D. PLAN 27540.

8. "EXCEPTED SUBPARCEL ZONE 3 PEASE AIR FORCE BASE PORTSMOUTH AND NEWINGTON, NEW HAMPSHIRE PREPARED FOR MWH AMERICAS MALVERN, PA" DATED OCTOBER 22, 2002 AND LAST REVISED (REV–3) 10/22–03 BY TFM. R.C.R.D. PLAN 31494.

9. "PLAN OF GROUNDWATER MANAGEMENT ZONE – ZONE 3 – PEASE AIR FORCE BASE PORTSMOUTH AND NEWINGTON, NEW HAMPSHIRE PREPARED FOR MWH AMERICAS MALVERN, PA" DATED JUNE 4, 2002 AND LAST REVISED (REV–2) 6/27/02 BY TFM. R.C.R.D. PLAN 31503.

10. "PLAN OF USE RESTRICTION ZONE SITE 32 PEASE AIR FORCE BASE PORTSMOUTH, NEW HAMPSHIRE PREPARED FOR MWH AMERICAS MALVERN, PA" DATED JULY 11, 2002 AND REVISED (REV–1) 7/18/02 BY TFM. R.C.R.D. PLAN 31506.

11. "PLAN OF USE RESTRICTION ZONE SITE 81 PEASE AIR FORCE BASE PORTSMOUTH, NEW HAMPSHIRE PREPARED FOR MWH AMERICAS MALVERN, PA" DATED JUNE 10, 2005 BY TFM. R.C.R.D. PLAN 33301.

12. "PLAN OF USE RESTRICTION ZONE SITE 72 – BASE MOTOR POOL – PEASE AIR FORCE BASE PORTSMOUTH, NEW HAMPSHIRE PREPARED FOR MWH AMERICAS MALVERN, PA" DATED JUNE 10, 2005 BY TFM. R.C.R.D. PLAN 33302.

13. "SUBDIVISION PLAN DEPICTING PORTSMOUTH TAX MAP 306 LOT 3" DATED AUGUST 1, 2005 AND LAST REVISED (REV–2) SAME DATE AUGUST 1, 2005 BY ALTUS ENGINEERING. R.C.R.D. PLAN 33592.

14. "USE RESTRICTION ZONE – ZONE 3 – PEASE AIR FORCE BASE PORTSMOUTH AND NEWINGTON, NEW HAMPSHIRE PREPARED FOR MWH AMERICAS MALVERN, PA" DATED JUNE 10, 2005 AND REVISED (REV–1) JUNE 17, 2005 BY TFM. R.C.R.D. PLAN 33593.

15. "SUBDIVISION PLAN FOR 75 NEW HAMPSHIRE LLC – 75 NEW HAMPSHIRE AVENUE – 50 INTERNATIONAL DRIVE & 80 INTERNATIONAL DRIVE (TAX MAP 306, LOTS 1, 2, 4 & 5) PEASE INTERNATIONAL TRADEPORT ROCKINGHAM COUNTY PORTSMOUTH, NEW HAMPSHIRE" DATED AUG 14, 2007 AND LAST REVISED (REV–4) 10/15/07 BY DOUCET SURVEY INC. R.C.R.D. PLAN 35260.

16. "PLAN FOR NEW HAMPSHIRE AIR NATIONAL GUARD PEASE BLVD, AIRLINE AVE & NEW HAMSHIRE AVE PEASE INTERNATIONAL TRADEPORT, NEWINGTON ROCKINGHAM COUNTY, NH" DATED 7–DEC–2009 AND LAST REVISED 1/21/11 BY EASTERLY SURVEYING, INC.

17. "PROPOSED 4 STORY OFFICE BUILDING 100 NEW HAMPSHIRE AVENUE PORTSMOUTH, NH" DATED NOVEMBER 16, 2018 AND LAST REVISED 12/04/18 BY HOYLE, TANNER & ASSOCIATES.

KEY MAP

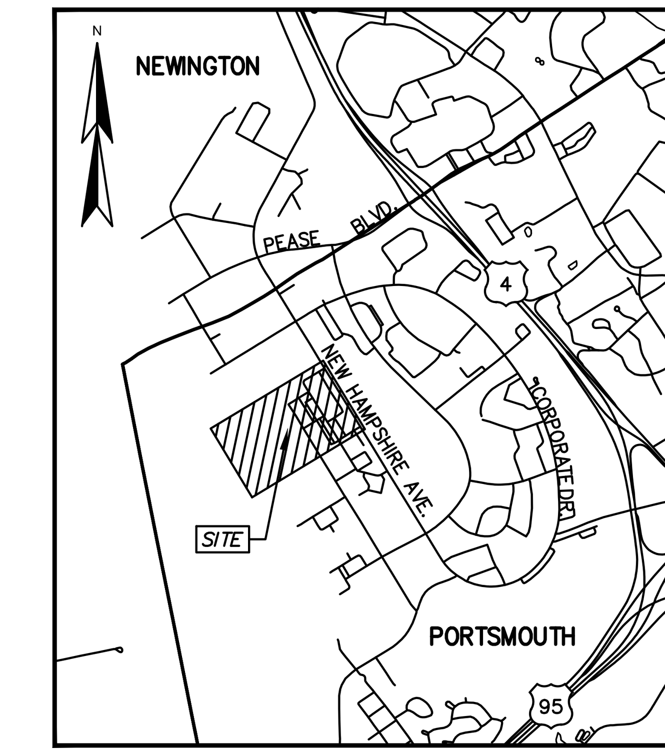
LEGEND

LOT LINE
APPROXIMATE LOT LINE
APPROXIMATE ABUTTERS LOT LINE
EXISTING EASEMENT LINE
APPROXIMATE RIGHT–OF–WAY LINE
CHAIN LINK FENCE
FENCE
FENCE OBSCURED
OHW OVERHEAD WIRE
SS SEWER LINE
SD DRAIN LINE
G GAS LINE
W WATER LINE
100 MAJOR CONTOUR LINE
98 MINOR CONTOUR LINE
100 LIDAR MAJOR CONTOUR LINE
98 LIDAR MINOR CONTOUR LINE
TREE LINE
SHRUB LINE
EDGE OF WETLAND
EDGE OF WETLAND (PER CLIENT)
EDGE OF WATER
WATERCOURSE
WETLAND AREA
CONCRETE

MEDIUM LONE TREE
SMALL LONE TREE
UTILITY COVER
UTILITY COVER
FIRE HYDRANT
WV WATER GATE VALVE
GV GAS GATE VALVE
VP VENT PIPE
E ELECTRIC BOX
TB TELEPHONE BOX
DRAIN
CATCH BASIN
D DRAIN MANHOLE
F.E.S FLARED END SECTION
M MANHOLE
E ELECTRIC MANHOLE
T TELEPHONE MANHOLE
S SEWER MANHOLE
CO CLEANOUT
FLAG POLE
MONITORING WELL LOCATION
ACCESSIBLE PARKING SPACE

RIP RAP
RETAINING WALL
DRIVEWAY
DRIVEWAY OBSCURED
ASPHALT TAXIWAY
CONCRETE TAXIWAY
CURB BOTTOM
CURB BACK
PIPELINES
UTILITY POLE
UTILITY POLE & GUY WIRE
UTILITY POLE W/LIGHT
UTILITY POLE OBSCURED
LIGHT POLE
SIGN
SIGN (TWO POSTS)
BOUND FOUND
IRON PIPE/ROD FOUND
POST
POST
BOLLARD
LOCATED OBJECT

×100.0	SPOT GRADE
TYP.	TYPICAL
BND. FND.	BOUND FOUND
I.P.F.	IRON PIPE FOUND
CONC.	CONCRETE
GRAN.	GRANITE
HDWL	HEADWALL
SGC	SLOPED GRANITE CURB
"NP"	NO PARKING SIGN
"NT"	NO TRESPASSING SIGN
"NTT"	NO THRU TRAFFIC SIGN
ACP	ASBESTOS CEMENT PIPE
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
RCP	REINFORCED CONCRETE PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
PVC	POLYVINYL CHLORIDE PIPE
UNK	UNKNOWN
VCP	VITREOUS CLAY PIPE
TOP	TOP OF PIPE
NM	NOT MEASURED



LOCATION MAP (n.t.s.)

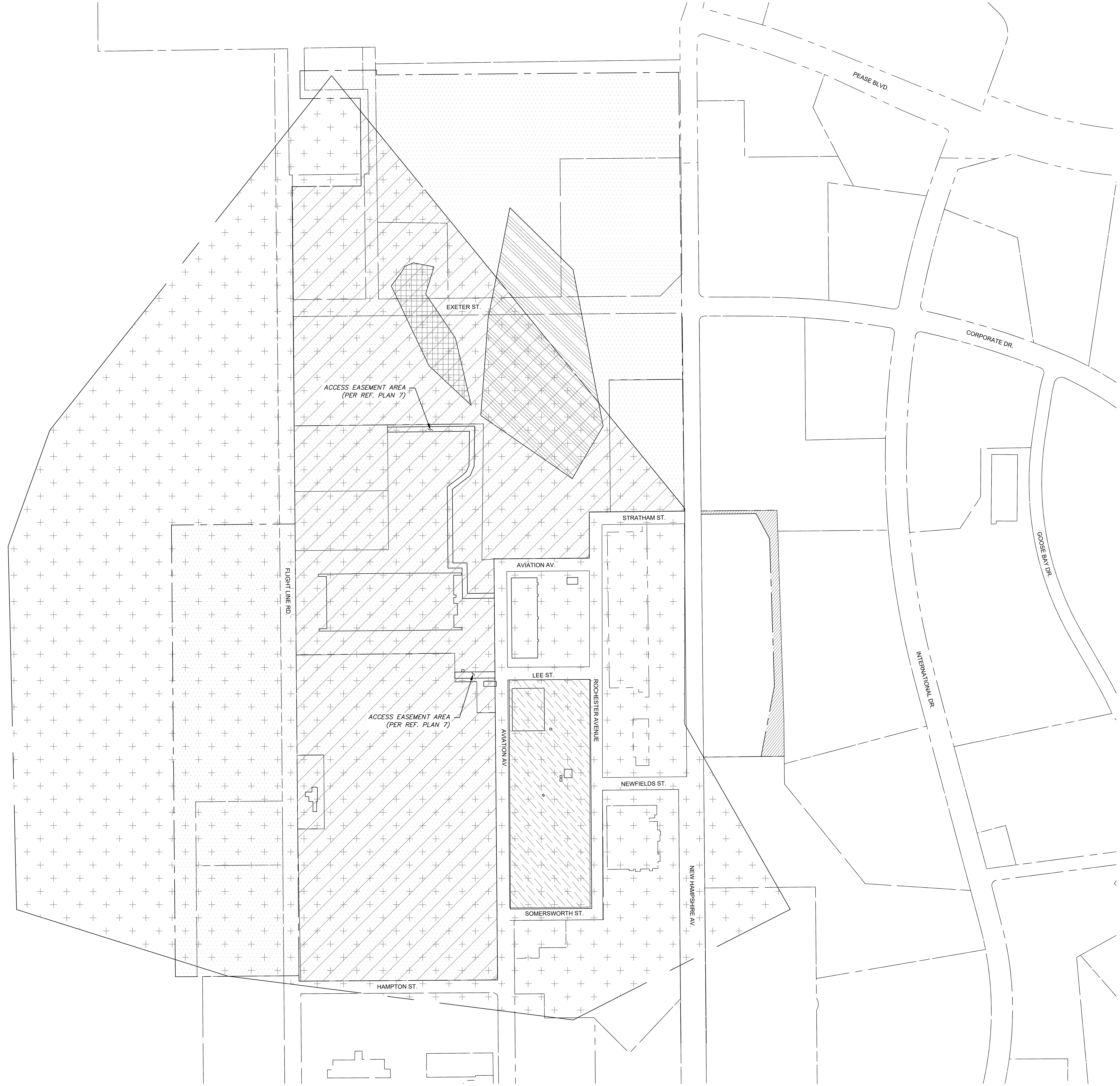
300 0 300 600
SCALE: 1 INCH = 300 FT.

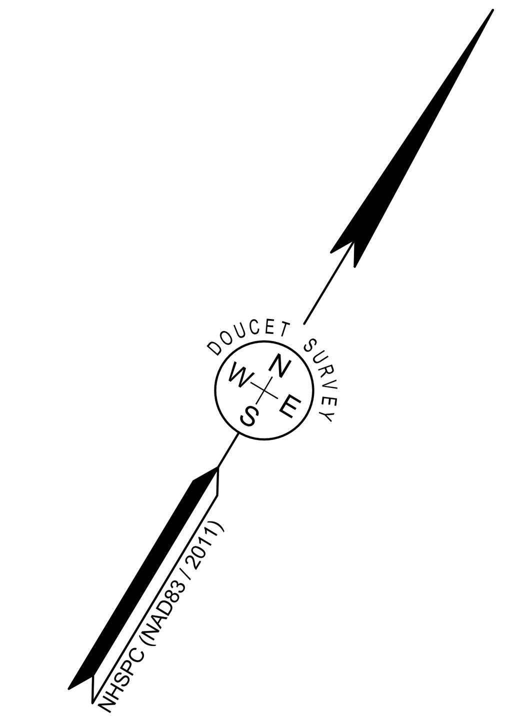
EXISTING CONDITIONS PLAN
FOR
TIGHE & BOND
OF
PEASE HANGAR 227 AREA
PORTIONS OF AVIATION AVENUE,
FLIGHTLINE ROAD, LEE STREET,
NEWFIELDS STREET,
NEW HAMPSHIRE AVENUE
ROCHESTER AVENUE
AND STRATHAM STREET
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY
1	09/21/22	UPDATED DMH 1925 OUTLET SIZE	W.D.C.

DRAWN BY: W.D.C.	DATE: FEBRUARY 2022
CHECKED BY: M.J.C.	DRAWING NO. 7239A
JOB NO. 7239	SHEET 1 OF 8

DOUCET SURVEY LLC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com





LEGEND

- EXCEPTED SUBPARCEL ZONE 3 (PER REF. PLAN 8)
- GROUNDWATER MANAGEMENT ZONE 3 (PER REF. PLAN 9)
- USE RESTRICTION ZONE SITE 32 (PER REF. PLAN 10)
- USE RESTRICTION ZONE SITE 81 (PER REF. PLAN 11)
- USE RESTRICTION ZONE SITE 72 (PER REF. PLAN 12)
- LIMIT OF DRAINAGE LICENSE RESERVED BY OWNER (PER REF. PLAN 13)
- USE RESTRICTION ZONE SITE 3 (PER REF. PLAN 14)

250 0 250 500

SCALE: 1 INCH = 250 FT.

EXISTING CONDITIONS PLAN

FOR

TIGHE & BOND

OF

PEASE HANGAR 227 AREA

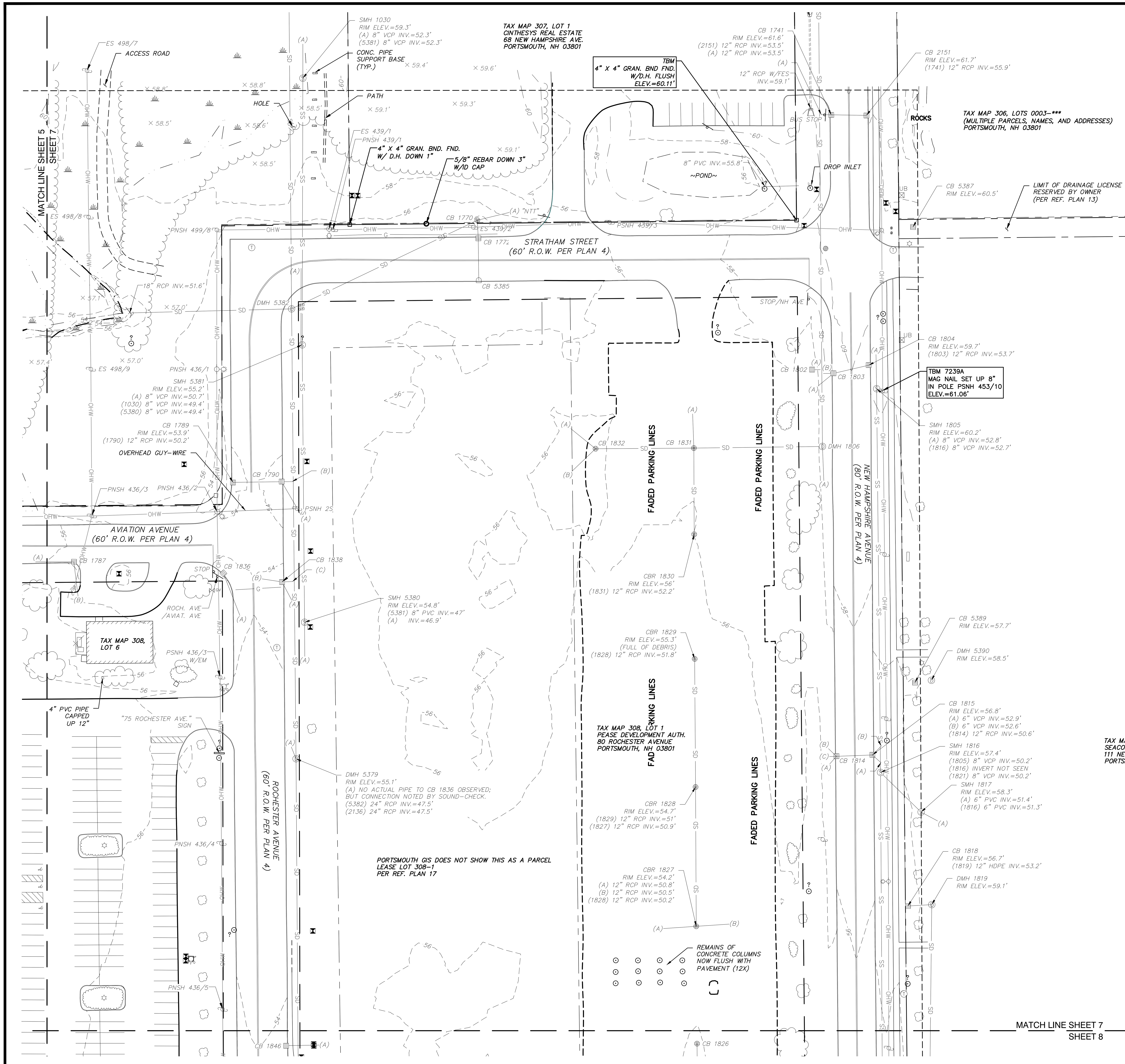
PORTIONS OF AVIATION AVENUE,
FLIGHTLINE ROAD, LEE STREET,
NEWFIELDS STREET,
NEW HAMPSHIRE AVENUE
ROCHESTER AVENUE
AND STRATHAM STREET
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY
1	09/21/22	UPDATED DMH 1925 OUTLET SIZE	W.D.C.

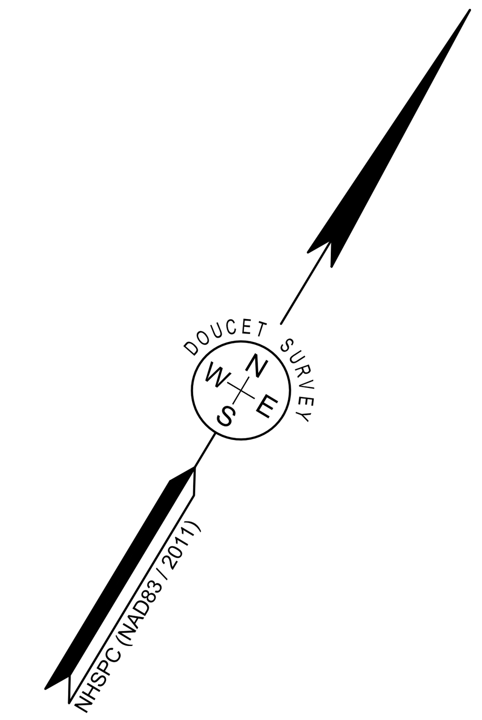
DRAWN BY: W.D.C.	DATE: FEBRUARY 2022
CHECKED BY: M.J.C.	DRAWING NO. 7239A
JOB NO. 7239	SHEET 2 OF 8

DOUCET SURVEY LLC

Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com



DRAINAGE STRUCTURES	
CB 1770 RIM ELEV.=52.3' (1772) 12" RCP INV.=50.4' (A) 4" HDPE INV.=50.2' (5382) 15" RCP INV.=49.9' SUMP ELEV.=50.2'	CB 1831 RIM ELEV.=56.5' (1806) 12" RCP INV.=51.7' (1830) 12" RCP INV.=51.5' (A) 12" RCP INV.=51.5' (1832) 10" VCP INV.=51.5'
CB 1772 RIM ELEV.=54.1' (5385) 12" RCP INV.=50.5' (1770) 12" RCP INV.=50.3' DEBRIS=50.7'	CB 1832 RIM ELEV.=55' (A) 6" PVC INV.=53.1' (B) 6" PVC INV.=53' (1831) 10" VCP INV.=52.5'
CB 1787 RIM ELEV.=55.7' (A) 6" VCP INV.=51.1' NOTE: "A" DOES NOT CON. TO CB 1719 (B) 12" RCP INV.=51.0'	CB 1836 RIM ELEV.=53.6' (A) 12" RCP INV.=50.4' DEBRIS=50.4'
CB 1790 RIM ELEV.=53.8' (A) 6" UNK INV.=49.6' (1789) 12" RCP INV.=49.6' (B) 12" RCP INV.=49.6' TO REFUSAL=49.5'	CB 1838 RIM ELEV.=53.9' (A) 6" VCP INV.=49.5' (B) 18" RCP INV.=49.5' (C) 18" RCP INV.=49.4' DEBRIS=49.3'
CB 1802 RIM ELEV.=56.4' (A) 12" RCP INV.=52.5'	CB 1846 RIM ELEV.=53.8' (A) 12" RCP INV.=49.5' BROKEN BOTTOM=49.6'
CB 1803 RIM ELEV.=59.6' (A) 6" VCP INV.=55.3' (1804) 12" RCP INV.=51.1' (B) 12" RCP INV.=50.6'	DMH 5382 RIM ELEV.=55.4' (1770) 15" RCP INV.=49.1' (WETLAND INLET) 18" RCP INV.=49.0' (5383) 24" RCP INV.=48.7' (5379) 24" RCP INV.=48.7' DEBRIS=48.6'
DMH 1806 RIM ELEV.=58.5' (1831) 12" RCP INV.=50.6' (2152) 36" RCP INV.=49.0' (A) 36" RCP INV.=48.8' GIS SHOWS ONE STRUCTURE BETWEEN DMH 1806 & DMH 1925 (VERY CLOSE TO 1925) BUT IT WAS NOT FOUND BELOW SNOWBANKS.	CB 5385 RIM ELEV.=54.3' (1772) 12" RCP INV.=50.6' DEBRIS=50.7'
CB 1814 RIM ELEV.=56.8' (A) 6" VCP INV.=52' (B) 6" VCP INV.=51.9' (1815) 12" RCP INV.=49.3' (C) 12" RCP INV.=49.1'	



40 0 40 80
SCALE: 1 INCH = 40 FT.

EXISTING CONDITIONS PLAN
FOR
TIGHE & BOND
OF
PEASE HANGAR 227 AREA
PORTIONS OF AVIATION AVENUE,
FLIGHTLINE ROAD, LEE STREET,
NEWFIELDS STREET,
NEW HAMPSHIRE AVENUE
ROCHESTER AVENUE
AND STRATHAM STREET
PORTSMOUTH, NEW HAMPSHIRE

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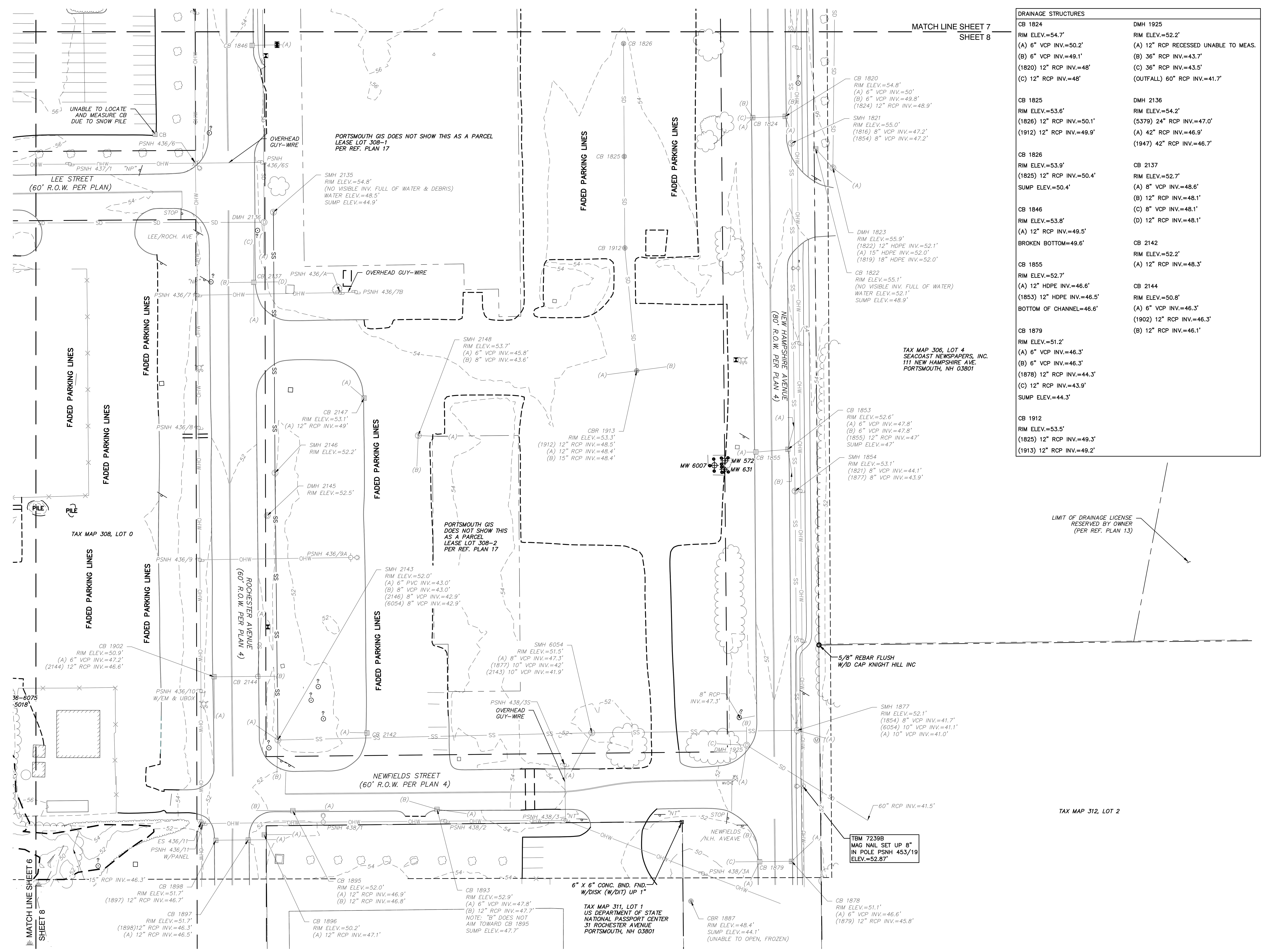

DRAINAGE STRUCTURES

CB 1824
RIM ELEV.=54.7'
(A) 6" VCP INV.=50.2'
(B) 6" VCP INV.=49.1'
(1820) 12" RCP INV.=48'
(C) 12" RCP INV.=48'

CB 1825
RIM ELEV.=53.6'
(1826) 12" RCP INV.=50.1'
(1912) 12" RCP INV.=49.9'

CB 1826
RIM ELEV.=53.9'
(1825) 12" RCP INV.=50.4'
SUMP ELEV.=50.4'

CB 1846
RIM ELEV.=53.8'
(A) 12" RCP INV.=49.5'
BROKEN BOTTOM=49.6'

CB 1855
RIM ELEV.=52.7'
(A) 12" HDPE INV.=46.6'
(1853) 12" HDPE INV.=46.5'
BOTTOM OF CHANNEL=46.6'

CB 1879
RIM ELEV.=51.2'
(A) 6" VCP INV.=46.3'
(B) 6" VCP INV.=46.3'
(1878) 12" RCP INV.=44.3'
(C) 12" RCP INV.=43.9'
SUMP ELEV.=44.3'

CB 1912
RIM ELEV.=53.5'
(1825) 12" RCP INV.=49.3'
(1913) 12" RCP INV.=49.2'

DMH 1925
RIM ELEV.=52.2'
(A) 12" RCP RECESSED UNABLE TO MEAS.
(B) 36" RCP INV.=43.7'
(C) 36" RCP INV.=43.5'
(OUTFALL) 60" RCP INV.=41.7'

DMH 2136
RIM ELEV.=54.2'
(5379) 24" RCP INV.=47.0'
(A) 42" RCP INV.=46.9'
(1947) 42" RCP INV.=46.7'

CB 2137
RIM ELEV.=52.7'
(A) 8" VCP INV.=48.6'
(B) 12" RCP INV.=48.1'
(C) 8" VCP INV.=48.1'
(D) 12" RCP INV.=48.1'

CB 2142
RIM ELEV.=52.2'
(A) 12" RCP INV.=48.3'

CB 2144
RIM ELEV.=50.8'
(A) 6" VCP INV.=46.3'
(1902) 12" RCP INV.=46.3'
(B) 12" RCP INV.=46.1'

EXISTING CONDITIONS PLAN
FOR
TIGHE & BOND
OF
PEASE HANGAR 227 AREA
PORTIONS OF AVIATION AVENUE,
FLIGHTLINE ROAD, LEE STREET,
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NEW HAMPSHIRE AVENUE
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EXISTING CONDITIONS PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY DOUCET SURVEY LLC DURING JANUARY & FEBRUARY 2022.
2. JURISDICTIONAL WETLANDS DELINEATED BY TIGHE & BOND, DURING DECEMBER 2021.

REFERENCE PLANS:

1. "EXISTING CONDITIONS PLAN FOR TIGHE & BOND OF PEASE HANGAR 227 AREA, PORTIONS OF AVIATION AVENUE, FLIGHTLINE ROAD, LEE STREET, NEWFIELDS STREET, NEW HAMPSHIRE AVENUE, ROCHESTER AVENUE, AND STRATHEM STREET" PREPARED BY DOUCET SURVEY LLC, LAST REVISED 09/21/2022.

DEMOLITION NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
3. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
4. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
5. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
8. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS. MATERIAL DEMOLITION AND DISPOSAL SHALL BE DONE IN CONFORMANCE WITH THE PEASE WASTE MANAGEMENT PLAN REQUIREMENTS.
10. UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY AND CITY OF PORTSMOUTH STANDARD. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK.
11. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
12. PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.
13. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, MANHOLES, CATCH BASINS, UNDER GROUND PIPING, POLES, SIGNS, BOLLARDS, TREES AND LANDSCAPING.
14. COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH AND PEASE DEVELOPMENT AUTHORITY.
15. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
16. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
17. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
18. THE CONTRACTOR SHALL PHASE DEMOLITION AND CONSTRUCTION AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO EXISTING BUSINESSES AND HOMES THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING BUSINESS AND HOME SERVICES INCLUDE, BUT ARE NOT LIMITED TO ELECTRICAL, COMMUNICATION, FIRE PROTECTION, DOMESTIC WATER AND SEWER SERVICES. TEMPORARY SERVICES, IF REQUIRED, SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. CONTRACTOR SHALL PROVIDE DETAILED CONSTRUCTION SCHEDULE TO OWNER PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES AND SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
19. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
20. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
21. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.
22. BEFORE ANY DEWATERING IS PERFORMED A TEMPORARY DISCHARGE PERMIT FROM THE NHDES IS REQUIRED.
23. THE SITE IS IN A GROUNDWATER MANAGEMENT ZONE (GMZ). THE APPLICANT SHALL COORDINATE WITH PDA, NHDES AND THE AIR FORCE TO DETERMINE IF ANY SPECIAL MEASURES ARE REQUIRED DURING CONSTRUCTION TO ENSURE THE SAFETY OF WORKERS AND PROPER HANDLING OF MATERIALS. NO EXISTING SOILS OR MATERIALS MAY BE REMOVED AND DISPOSED OF OFFSITE UNLESS TESTING AND PROTOCOLS ESTABLISHED ARE FOLLOWED. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED AREA OF SPECIAL NOTICE PROVISIONS ISSUED BY THE AIR FORCE.
24. THE CONTRACTOR SHALL ACQUIRE A PDA DIG PERMIT BEFORE ANY DISTURBANCE CAN TAKE PLACE. ALLOW 7 CALENDAR DAYS FOR PROCESSING.
25. ALL MONITORING WELLS WITHIN THE LIMIT OF WORK SHALL BE PROTECTED DURING CONSTRUCTION. IF ANY MONITORING WELL NEEDS TO BE REMOVED OR ADJUSTED THIS WORK SHALL BE COORDINATED WITH PDA AND THE AIR FORCE.

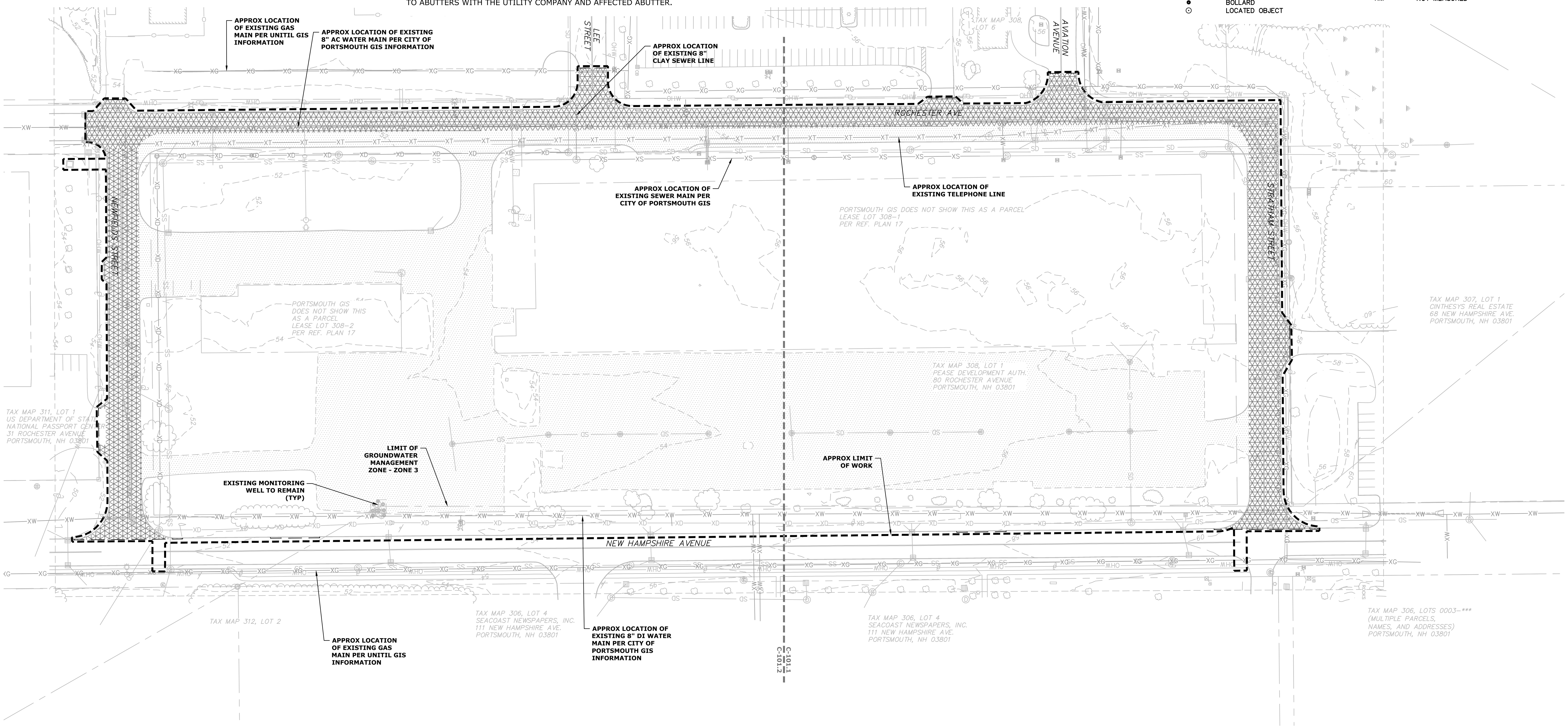
DEMOLITION LEGEND

APPROXIMATE LIMIT OF WORK
APPROXIMATE LIMIT OF SAWCUT
APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
APPROXIMATE LIMIT OF PAVEMENT TO BE RECLAIMED

LEGEND

LOT LINE
APPROXIMATE LOT LINE
APPROXIMATE ABUTTERS LOT LINE
EXISTING EASEMENT LINE
APPROXIMATE RIGHT-OF-WAY LINE
CHAIN LINK FENCE
FENCE
FENCE OBSCURED
OHW — OVERHEAD WIRE
SS — SEWER LINE
D — DRAIN LINE
G — GAS LINE
W — WATER LINE
100 — MAJOR CONTOUR LINE
98 — MINOR CONTOUR LINE
100 — LIDAR MAJOR CONTOUR LINE
98 — LIDAR MINOR CONTOUR LINE
TREE LINE
SHRUB LINE
EDGE OF WETLAND
EDGE OF WETLAND (PER CLIENT)
EDGE OF WATER
WATERCOURSE
WETLAND AREA
CONCRETE
RIP RAP
RETAINING WALL
DRIVEWAY
DRIVEWAY OBSCURED
ASPHALT TAXIWAY
CONCRETE TAXIWAY
CURB BOTTOM
CURB BACK
PIPELINES
UTILITY POLE
UTILITY POLE & GUY WIRE
UTILITY POLE W/LIGHT
UTILITY POLE OBSCURED
LIGHT POLE
SIGN
SIGN (TWO POSTS)
BOUND FOUND
IRON PIPE/ROD FOUND
POST
POST
BOLLARD
LOCATED OBJECT

MEDIUM LONE TREE
SMALL LONE TREE
UTILITY COVER
UTILITY COVER
FIRE HYDRANT
WATER GATE VALVE
GAS GATE VALVE
VP — VENT PIPE
ELECTRIC BOX
TELEPHONE BOX
DRAIN
CATCH BASIN
DRAIN MANHOLE
F.E.S — FLARED END SECTION
MANHOLE
ELECTRIC MANHOLE
TELEPHONE MANHOLE
SEWER MANHOLE
CLEANOUT
FLAG POLE
MONITORING WELL LOCATION
ACCESSIBLE PARKING SPACE
×100.0 — SPOT GRADE
TYP. — TYPICAL
BND. FND. — BOUND FOUND
I.P.F. — IRON PIPE FOUND
CONC. — CONCRETE
GRAN. — GRANITE
HDWL — HEADWALL
SGC — SLOPED GRANITE CURB
"NP" — NO PARKING SIGN
"NT" — NO TRESPASSING SIGN
"NTT" — NO THRU TRAFFIC SIGN
ACP — ASBESTOS CEMENT PIPE
CIP — CAST IRON PIPE
CMP — CORRUGATED METAL PIPE
RCP — REINFORCED CONCRETE PIPE
HDPE — HIGH DENSITY POLYETHYLENE PIPE
PVC — POLYVINYL CHLORIDE PIPE
UNK — UNKNOWN
VCP — VITREOUS CLAY PIPE
TOP — TOP OF PIPE
NM — NOT MEASURED



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Plot Date: Thursday, February 23, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: O-Demo

Tighe&Bond

STATE OF NEW HAMPSHIRE PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
2/23/23

STATE OF NEW HAMPSHIRE NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER
2/23/23

SCALE IN FEET
0 60' 120'
GRAPHIC SCALE

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

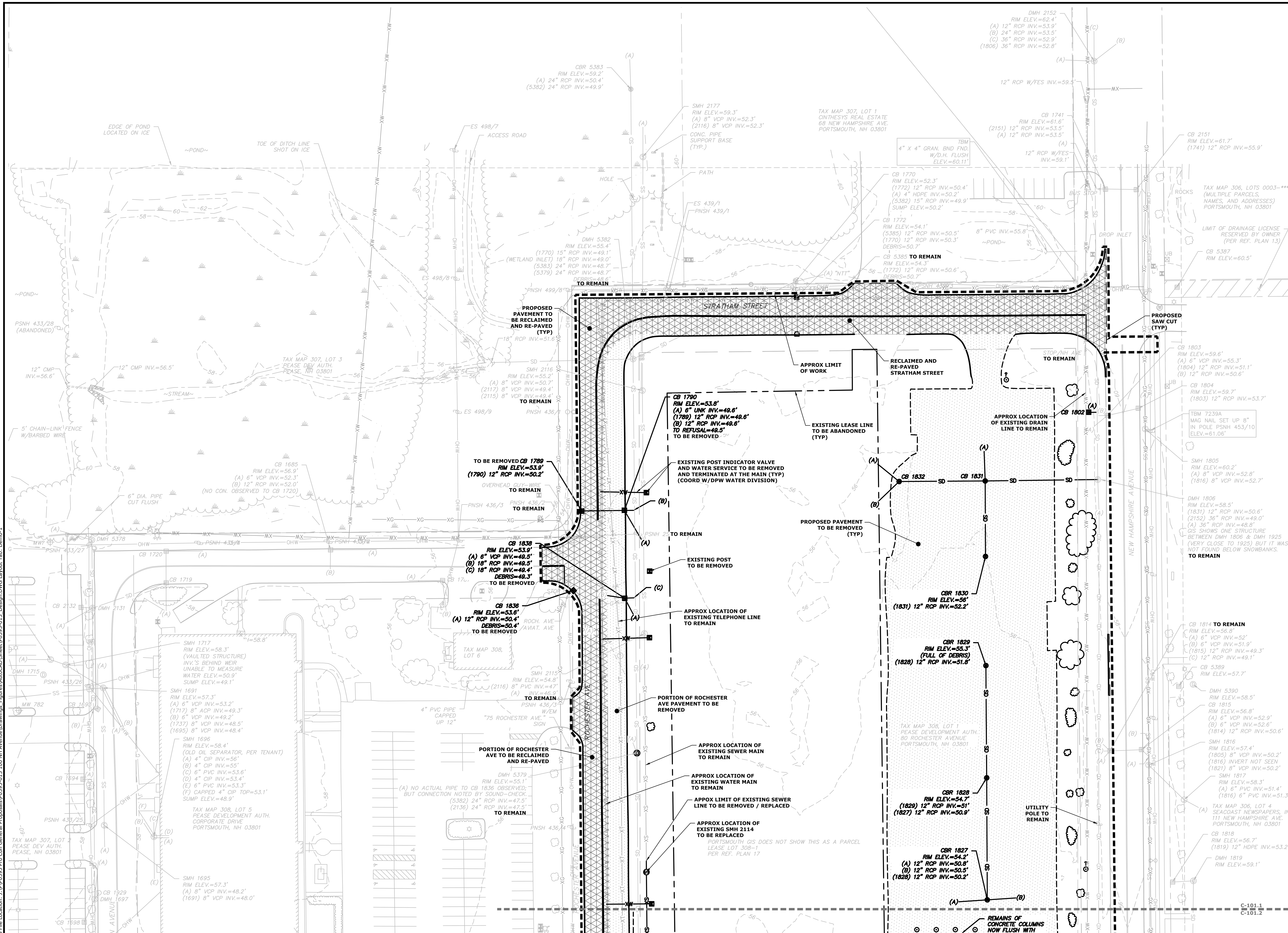
MARK	DATE	DESCRIPTION
D	2/23/2023	TAC Resubmission
C	2/6/2023	AoT Submission
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

OVERALL EXISTING CONDITIONS / DEMOLITION PLAN

SCALE: AS SHOWN

C-101



Tighe&Bond

STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS No. 12378 — LICENSED PROFESSIONAL ENGINEER — 2/23/23

STATE OF NEW HAMPSHIRE — NEIL A. HANSEN No. 15227 — LICENSED PROFESSIONAL ENGINEER — 2/23/23

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

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APPROVED:	PMC

EXISTING CONDITIONS / DEMOLITION PLAN

SCALE: AS SHOWN

C-101.1

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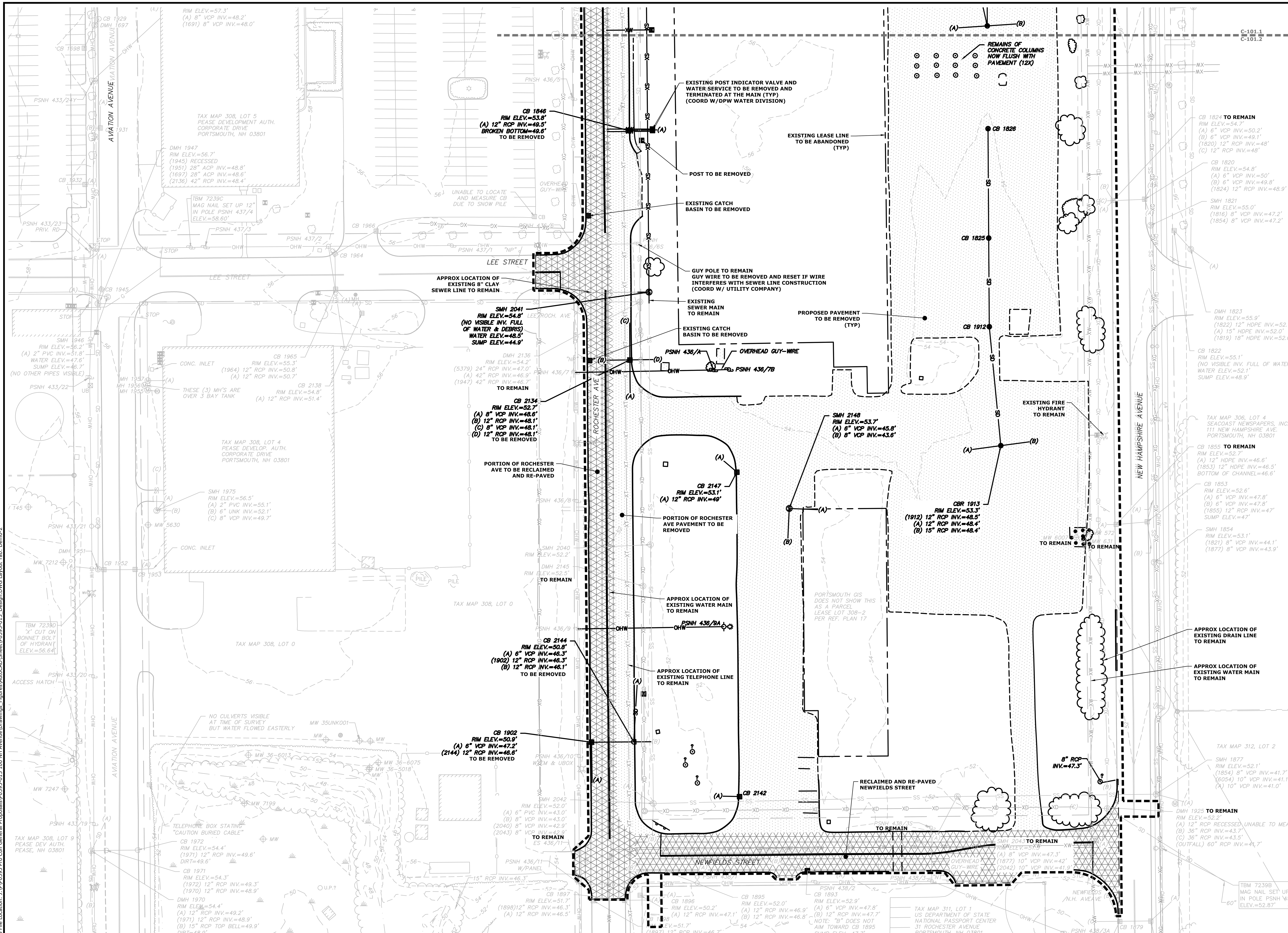

Tighe&Bond

N

PATRICK CRIMMINS No. 12378 — STATE OF NEW HAMPSHIRE — LICENSED PROFESSIONAL ENGINEER — 2/23/23

NEIL A. HANSEN No. 15227 — STATE OF NEW HAMPSHIRE — LICENSED PROFESSIONAL ENGINEER — 2/23/23

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Proposed Advanced Manufacturing Facility

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100 New Hampshire Avenue
Portsmouth, NH

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EXISTING CONDITIONS / DEMOLITION PLAN

SCALE: AS SHOWN

C-101.2

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T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: Demo-2

SITE NOTES:

1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES SHALL BE THERMOPLASTIC MATERIAL. THERMOPLASTIC MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO AASHTO M249. (ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE CITY OF PORTSMOUTH AND PEASE DEVELOPMENT AUTHORITY.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
11. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
12. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
13. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
14. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
15. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
16. UPON COMPLETION OF CONSTRUCTION AND PRIOR TO THE ISSUANCE OF CERTIFICATE OF OCCUPANCY OR RELEASE OF BOND, THE APPLICANT SHALL SUBMIT A LETTER TO THE PEASE DEVELOPMENT AUTHORITY, SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER, STATING CONSTRUCTION HAS BEEN COMPLETED IN CONFORMANCE WITH THE APPROVED PLANS.
17. SUBMISSION OF A MINIMUM OF TWO 7460-1'S TO THE FAA WILL BE REQUIRED FOR THE CONSTRUCTION OF THE BUILDING AND TEMPORARY USE OF A CRANE. ALLOW A MINIMUM OF 45 DAYS FOR PROCESSING.
18. PROPERTY MANAGER WILL BE RESPONSIBLE FOR TIMELY SNOW REMOVAL FROM ALL PUBLIC WALKS, DRIVES, AND AIRSIDE PAVEMENT AREAS ON-SITE. SNOW SHALL BE HAULED OFF-SITE AND LEGALLY DISPOSED OF, WHEN NECESSARY, WHEN SNOW STORAGE AREAS HAVE REACHED CAPACITY.
19. RETAINING WALL SHALL BE DESIGNED AND STAMPED BY A NEW HAMPSHIRE LICENSED PROFESSIONAL ENGINEER AND SHALL BE SUBMITTED TO PEASE DEVELOPMENT AUTHORITY FOR REVIEW.

SITE DATA:
LOCATION: TAX MAP 308, LOT 1
80 ROCHESTER AVENUE
PORTSMOUTH, NEW HAMPSHIRE

ZONING DISTRICT: INDUSTRIAL
ALLOWED USE: INDUSTRIAL / WAREHOUSE

DIMENSIONAL REQUIREMENTS:	REQUIRED	PROPOSED
MINIMUM LOT AREA:	10 ACRES	±10.9 ACRES
MINIMUM STREET FRONTAGE:	200 FT	±1,200 FT
MINIMUM SETBACKS:		
• FRONT:	70 FT	±51 FT(1)
• SIDE:	50 FT	±202 FT
• REAR:	50 FT	±28.4 FT(2)
MAXIMUM BUILDING HEIGHT:	PER FAA	36 FT
MINIMUM OPEN SPACE:	25%	±30%

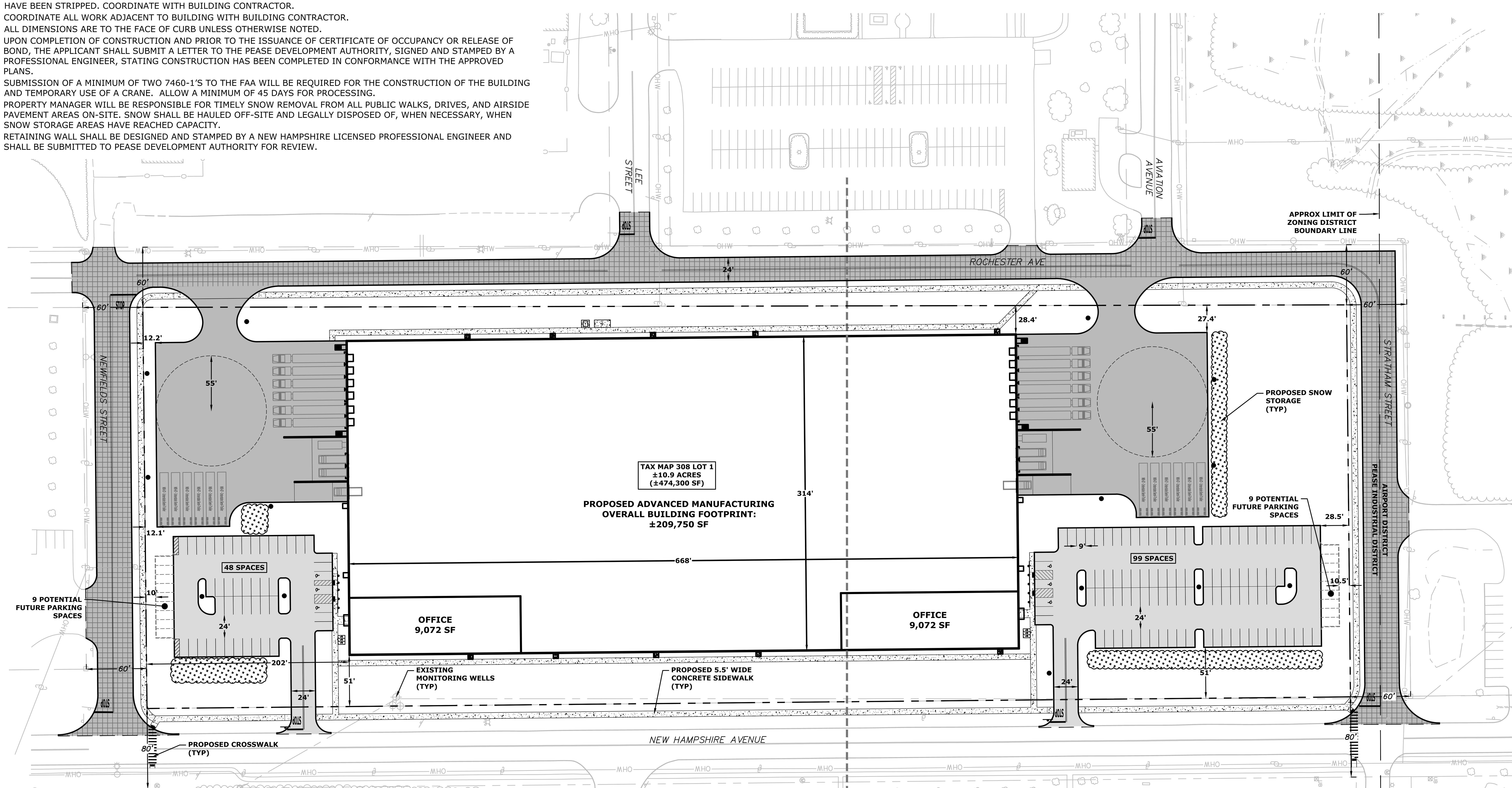
(1) - ON NOVEMBER 15, 2022 THE CITY OF PORTSMOUTH ZONING BOARD OF ADJUSTMENT VOTED TO RECOMMEND APPROVAL TO THE PDA BOARD FOR A VARIANCE FROM PART 304.03(C) TO ALLOW A 51 FOOT FRONT YARD WHERE 70 FEET IS REQUIRED.
(2) - VARIANCE REQUIRED FROM PART 304.03(E) OF THE PEASE INTERNATIONAL TRADEPORT ZONING ORDINANCE TO ALLOW FOR A ±28.4 FOOT REAR YARD WHERE 70 FEET IS REQUIRED.

PARKING REQUIREMENTS:	REQUIRED	PROPOSED
PARKING STALL LAYOUT:		
• STANDARD 90°	WIDTH: 8.5' MIN AREA: 160 SF MIN	9' X 18' (162 SF)
DRIVE AISLE WIDTH:		
• 90° (2-WAY TRAFFIC)	24 FT	24 FT (MIN)
PARKING SPACE REQUIREMENTS: INDUSTRIAL: 2 / 3 EMPLOYEES (LARGEST SHIFT) +1 / COMPANY-OWNED-VEHICLE = 161 EMPLOYEES x 2/3 EMPLOYEES) + 2 COMPANY-OWNED-VEHICLE =	110 SPACES	
OFFICE: 1 / 2 EMPLOYEES = 73 EMPLOYEES x (1 / 2 EMPLOYEES) =	37 SPACES	
TOTAL REQUIRED PARKING:	147 SPACES	147 SPACES(1)

(1) - SIX (6) ADA SPACES PROVIDED

LEGEND

- PROPOSED LEASE LINE
- PROPOSED CONCRETE
- PROPOSED STANDARD DUTY PAVEMENT SECTION
- PROPOSED HEAVY DUTY PAVEMENT SECTION
- PROPOSED RECLAIM AND RE-PAVE
- PROPOSED SNOW STORAGE AREA
- APPROXIMATE LIMIT OF SAWCUT
- PROPOSED LIGHT POLE BASE
- EXISTING PROPOSED SIGN
- PROPOSED BOLLARD



Tighe&Bond

2/23/23
STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED PROFESSIONAL ENGINEER
2/23/23

SCALE IN FEET
0 60' 120'
GRAPHIC SCALE

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
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B	1/25/2023	TAC Resubmission
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CHECKED:	NAH
APPROVED:	PMC

OVERALL SITE PLAN

SCALE: AS SHOWN

C-102

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Plot Date: Thursday, February 23, 2023 Plotted By: Craig M. Langton
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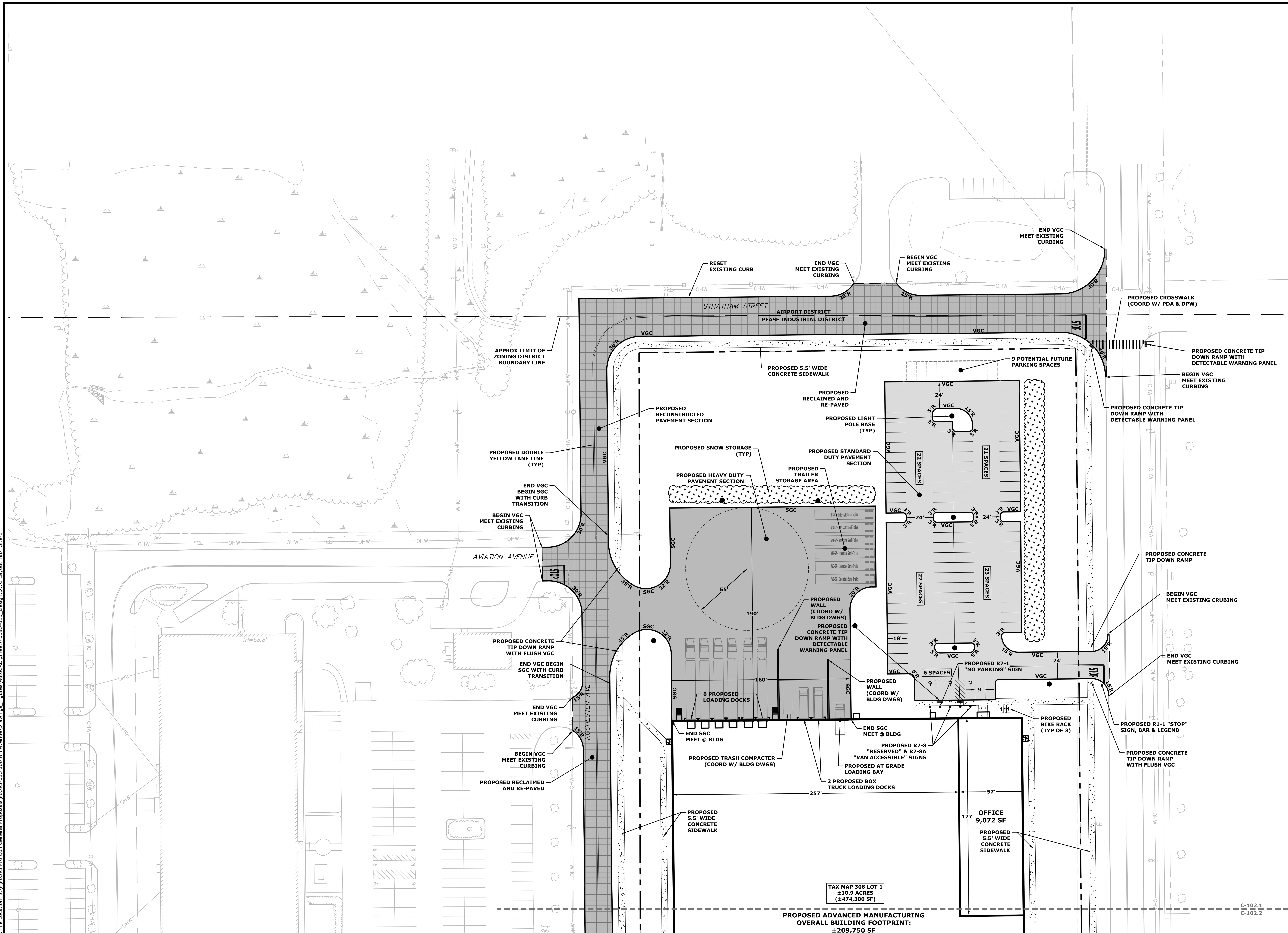

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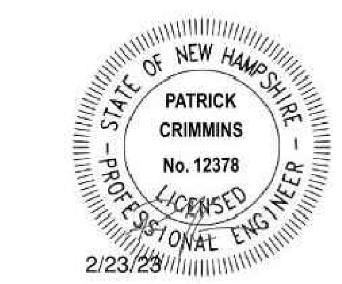
Tighe&Bond



SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Proposed Advanced Manufacturing Facility

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100 New Hampshire Avenue
Portsmouth, NH

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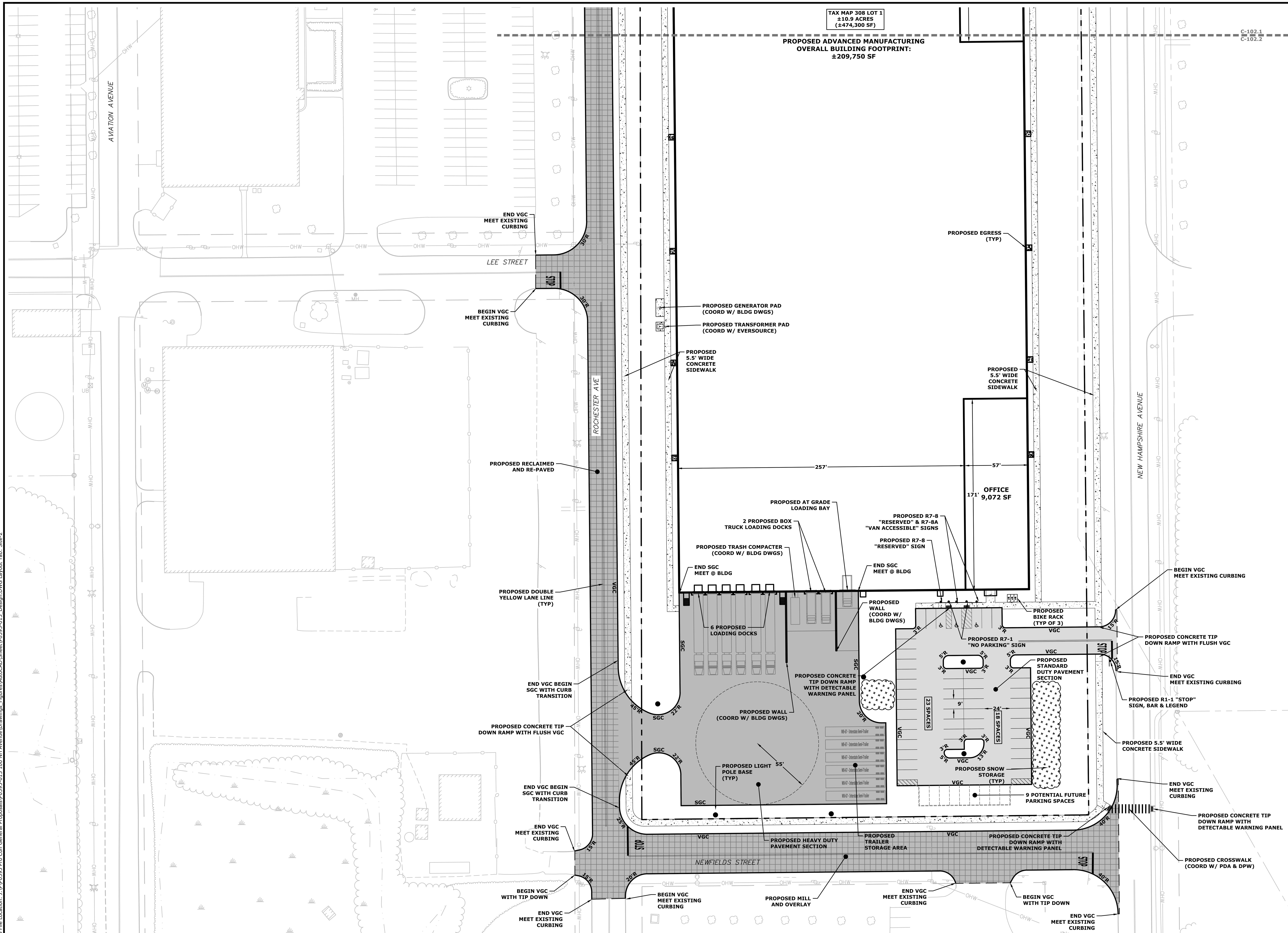
SITE PLAN

SCALE: AS SHOWN

C-102.1



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PATRICK CRIMMINS No. 12378 — STATE OF NEW HAMPSHIRE — LICENSED PROFESSIONAL ENGINEER
2/23/23

NEIL A. HANSEN No. 15227 — STATE OF NEW HAMPSHIRE — LICENSED PROFESSIONAL ENGINEER
2/23/23

SCALE IN FEET
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GRAPHIC SCALE

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SITE PLAN

SCALE: AS SHOWN

C-102.2

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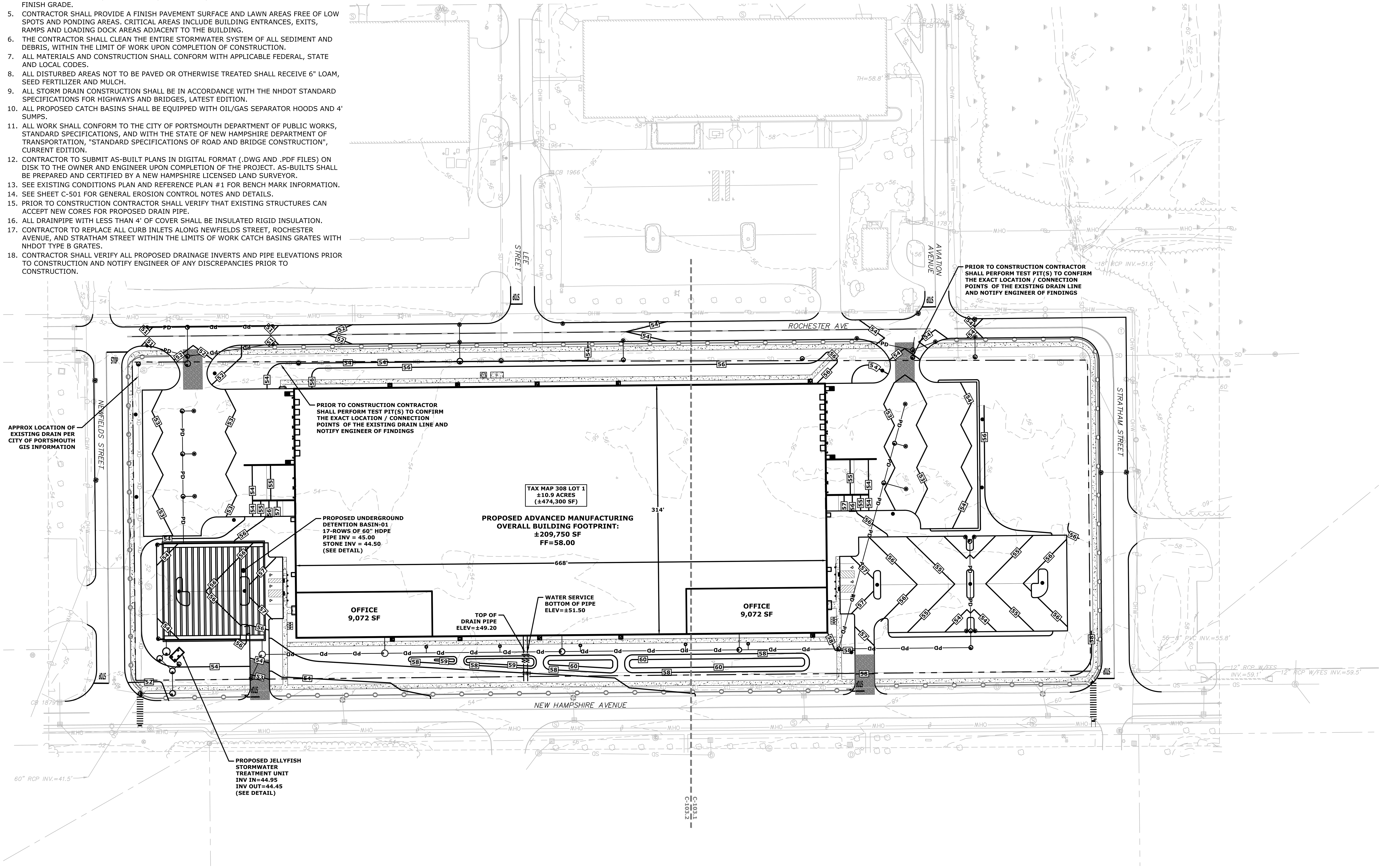
GRADING AND DRAINAGE & EROSION CONTROL NOTES:

1. COMPACTION REQUIREMENTS:
   - BELOW PAVED OR CONCRETE AREAS 95%
   - TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL 95%
   - BELOW LOAM AND SEED AREAS 90%
   - * ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL), UNLESS OTHERWISE SPECIFIED.
3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
5. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
6. THE CONTRACTOR SHALL CLEAN THE ENTIRE STORMWATER SYSTEM OF ALL SEDIMENT AND DEBRIS, WITHIN THE LIMIT OF WORK UPON COMPLETION OF CONSTRUCTION.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
9. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
10. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.
11. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS, AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
12. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
13. SEE EXISTING CONDITIONS PLAN AND REFERENCE PLAN #1 FOR BENCH MARK INFORMATION.
14. SEE SHEET C-501 FOR GENERAL EROSION CONTROL NOTES AND DETAILS.
15. PRIOR TO CONSTRUCTION CONTRACTOR SHALL VERIFY THAT EXISTING STRUCTURES CAN ACCEPT NEW CORES FOR PROPOSED DRAIN PIPE.
16. ALL DRAINPIPE WITH LESS THAN 4' OF COVER SHALL BE INSULATED RIGID INSULATION.
17. CONTRACTOR TO REPLACE ALL CURB INLETS ALONG NEWFIELDS STREET, ROCHESTER AVENUE, AND STRATHAM STREET WITHIN THE LIMITS OF WORK CATCH BASINS GRATES WITH NHDOT TYPE B GRATES.
18. CONTRACTOR SHALL VERIFY ALL PROPOSED DRAINAGE INVERTS AND PIPE ELEVATIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

LEGEND

—PD—PD—	PROPOSED DRAIN LINE
—XD—XD—	APPROXIMATE LOCATION OF EXISTING DRAIN PER CITY OF PORTSMOUTH GIS INFORMATION
—100—	EXISTING MAJOR CONTOUR LINE
—98—	EXISTING MINOR CONTOUR LINE
—56—	PROPOSED CONTOUR LINE
	PROPOSED CATCH BASIN
	PROPOSED YARD DRAIN
	PROPOSED DRAIN MANHOLE
±44.45	APPROX EXISTING SPOT GRADE
44.45	PROPOSED SPOT GRADE



Tighe&Bond

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED PROFESSIONAL ENGINEER
2/23/23

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
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2/23/23

SCALE IN FEET
0 60' 120'
GRAPHIC SCALE

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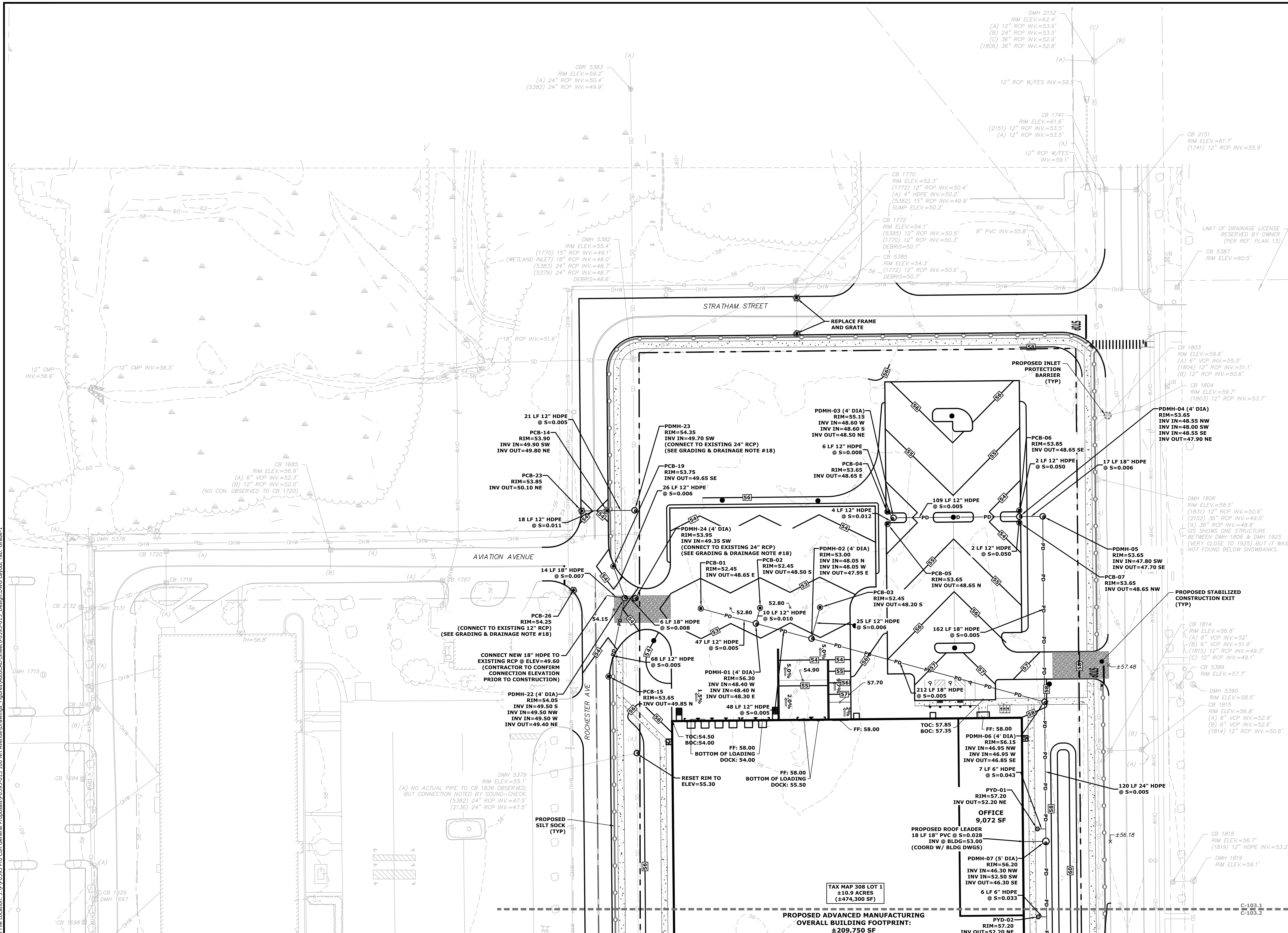
APPROVED:	PMC

OVERALL GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103



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SCALE IN FEET
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GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103.1

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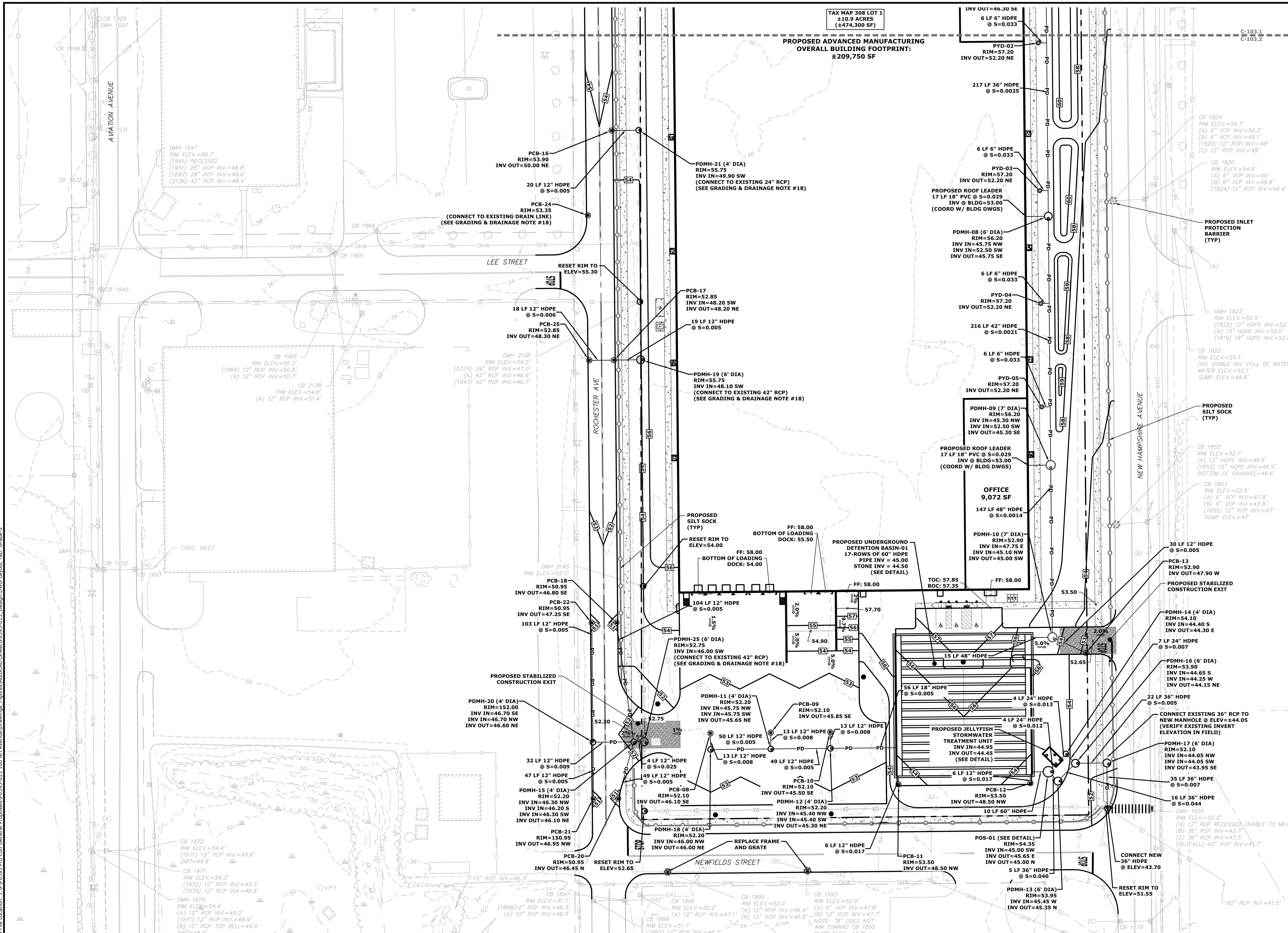

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2/23/23

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GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

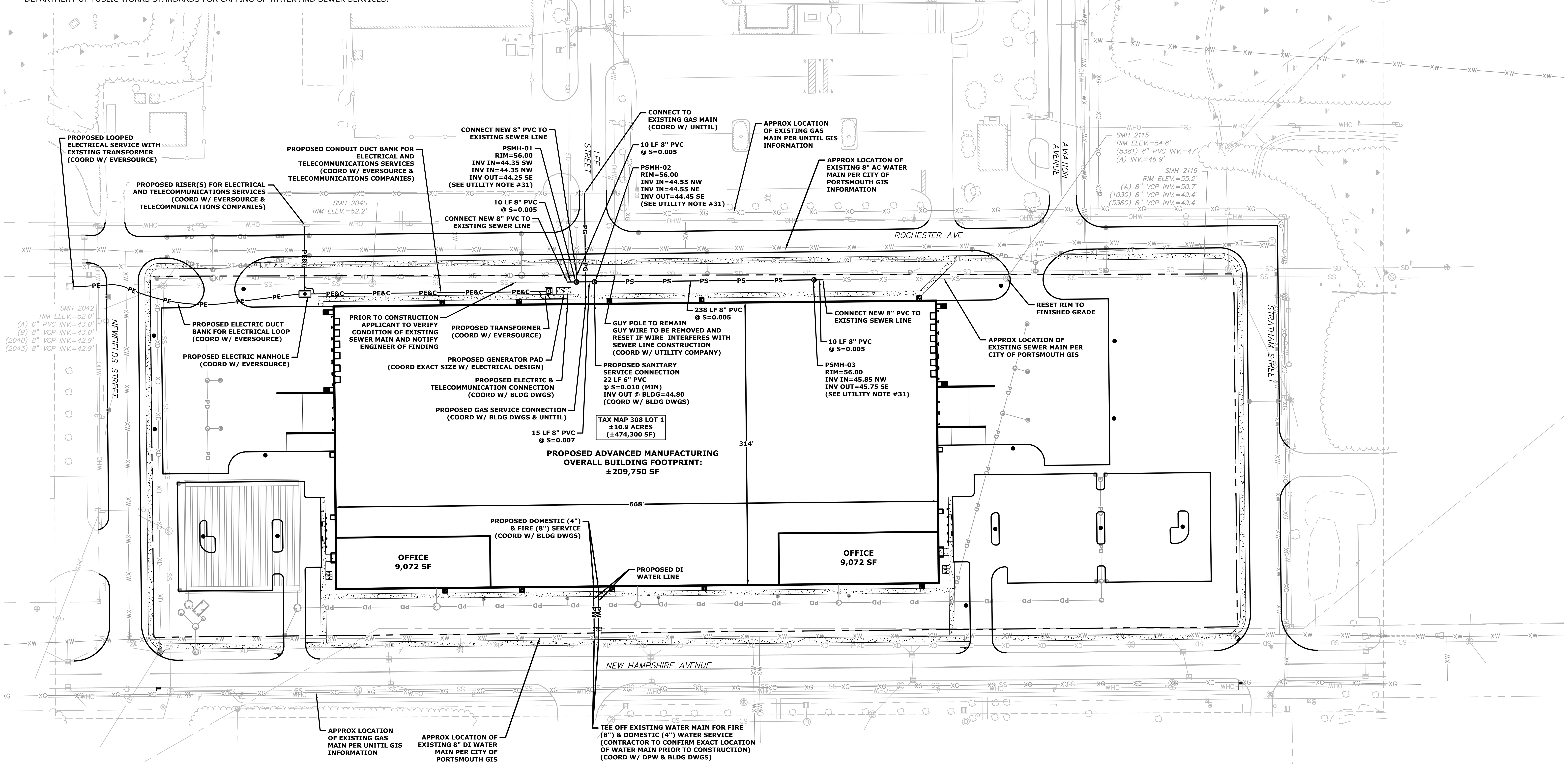
C-103.2

UTILITY NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS - UNITIL / NORTHERN UTILITIES
   - WATER - CITY OF PORTSMOUTH
   - SEWER - CITY OF PORTSMOUTH
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - FAIRPOINT COMMUNICATIONS
3. SEE EXISTING CONDITIONS PLAN AND REFERENCE PLAN #1 FOR BENCHMARK INFORMATION.
4. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
5. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
6. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE CITY OF PORTSMOUTH WATER DEPARTMENT.
7. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
8. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH AND PEASE DEVELOPMENT AUTHORITY.
9. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
10. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.
11. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
12. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
13. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
14. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
15. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
16. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
17. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
18. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
19. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
20. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
21. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
22. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
23. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH / PEASE FIRE DEPARTMENT.
24. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
25. ALL SEWER PIPE WITH LESS THAN 6' OF COVER IN PAVED AREAS OR LESS THAT 4' OF COVER IN UNPAVED AREAS SHALL BE INSULATED.
26. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
27. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
28. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.
29. CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING.
30. FINAL LOCATION OF ALL WATER METER AND VALVE SHALL BE COORDINATED WITH THE CITY OF PORTSMOUTH DPW PRIOR TO CONSTRUCTION.
31. CONTRACTOR SHALL VERIFY ALL PROPOSED SEWER INVERTS AND PIPE ELEVATIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

LEGEND

—PS—	PROPOSED SEWER LINE
—PG—	PROPOSED GAS LINE
—PC—	PROPOSED COMMUNICATIONS LINE
—PE—	PROPOSED ELECTRIC LINE
—PE&C—	PROPOSED ELECTRIC & COMMUNICATIONS LINE
—PW—	PROPOSED WATER LINE
WV	PROPOSED WATER GATE VALVE
	PROPOSED ELECTRIC MANHOLE
	PROPOSED SEWER MANHOLE



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Tighe&Bond

STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER — 2/23/23

STATE OF NEW HAMPSHIRE — NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER — 2/23/23

SCALE IN FEET: 0 — 60' — 120'
GRAPHIC SCALE

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UTILITY PLAN

SCALE: AS SHOWN

C-104

LANDSCAPE NOTES:

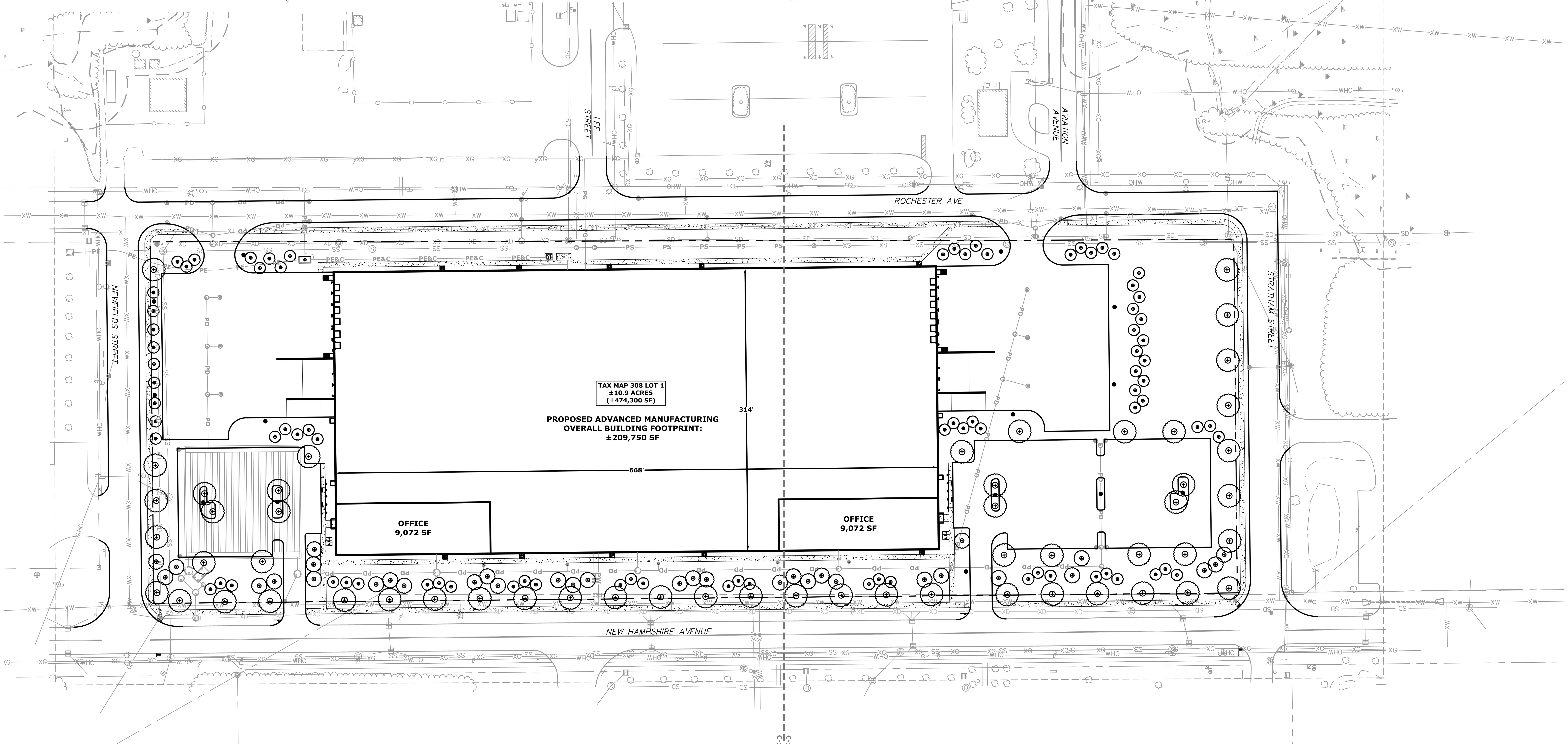
1. THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS IN QUANTITIES AS SHOWN ON THIS PLAN. NO SUBSTITUTIONS WILL BE PERMITTED UNLESS APPROVED BY OWNER. ALL PLANTS SHALL BE NURSERY GROWN.
2. ALL PLANTS SHALL BE NURSERY GROWN AND PLANTS AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS, INCLUDING BUT NOT LIMITED TO SIZE, HEALTH, SHAPE, ETC., AND SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO ARRIVAL ON-SITE AND AFTER PLANTING.
3. PLANT STOCK SHALL BE GROWN WITHIN THE HARDINESS ZONES 4 THRU 7 ESTABLISHED BY THE PLANT HARDINESS ZONE MAP, MISCELLANEOUS PUBLICATIONS NO. 814, AGRICULTURAL RESEARCH SERVICE, UNITED STATES DEPARTMENT AGRICULTURE, LATEST REVISION.
4. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
5. THE NUMBER OF EACH INDIVIDUAL PLANT TYPE AND SIZE PROVIDED IN THE PLANT LIST OR ON THE PLAN IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. IF A DISCREPANCY EXISTS BETWEEN THE NUMBER OF PLANTS ON THE LABEL AND THE NUMBER OF SYMBOLS SHOWN ON THE DRAWINGS, THE GREATER NUMBER SHALL APPLY.
6. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
7. THE CONTRACTOR SHALL LOCATE, VERIFY AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL IMMEDIATELY BE REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED, SHALL RECEIVE 6" OF LOAM AND SEED. NO FILL SHALL BE PLACED IN ANY WETLAND AREA.
9. THREE INCHES (3") OF BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS TO BE USED IN A CURBED ISLAND THE BARK MULCH SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 6" INCHES OF LOAM AND SEED.
10. LANDSCAPING SHALL BE LOCATED WITHIN 150 FT OF EXTERIOR HOSE ATTACHMENT OR SHALL BE PROVIDED WITH AN IRRIGATION SYSTEM.
11. SEE PLANTING DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. TREE STAKES SHALL REMAIN IN PLACE FOR NO LESS THAN 6 MONTHS AND NO MORE THAN 1 YEAR.
13. PLANTING SHALL BE COMPLETED FROM APRIL 15TH THROUGH OCTOBER 1ST. NO PLANTING DURING JULY AND AUGUST UNLESS SPECIAL PROVISIONS ARE MADE FOR DROUGHT.
14. TREES SHALL BE PRUNED IN ACCORDANCE WITH THE LATEST EDITION OF ANSI A300 'TREES, SHRUBS AND OTHER WOOD PLANT MAINTENANCE STANDARD PRACTICES.
15. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN, IF NECESSARY DURING THE FIRST GROWING SEASON. LANDSCAPE CONTRACTOR SHALL COORDINATE WATERING SCHEDULE WITH OWNER DURING THE ONE (1) YEAR GUARANTEE PERIOD.
16. EXISTING TREES AND SHRUBS SHOWN ON THE PLAN ARE TO REMAIN UNDISTURBED. ALL EXISTING TREES AND SHRUBS SHOWN TO REMAIN ARE TO BE PROTECTED WITH A 4-FOOT SNOW FENCE PLACED AT THE DRIP LINE OF THE BRANCHES OR AT 8 FEET MINIMUM FROM THE TREE TRUNK. ANY EXISTING TREE OR SHRUB SHOWN TO REMAIN, WHICH IS REMOVED DURING CONSTRUCTION, SHALL BE REPLACED BY A TREE OF COMPARABLE SIZE AND SPECIES TREE OR SHRUB.
17. THE CONTRACTOR SHALL GUARANTEE ALL PLANTINGS TO BE IN GOOD HEALTHY, FLOURISHING AND ACCEPTABLE CONDITION FOR A PERIOD OF ONE (1) YEAR BEGINNING AT THE DATE OF ACCEPTANCE OF SUBSTANTIAL COMPLETION. ALL GRASSES, TREES AND SHRUBS THAT, IN THE OPINION OF THE LANDSCAPE ARCHITECT, SHOW LESS THAN 80% HEALTHY GROWTH AT THE END OF ONE YEAR PERIOD SHALL BE REPLACED BY THE CONTRACTOR.
18. UPON EXPIRATION OF THE CONTRACTOR'S ONE YEAR GUARANTEE PERIOD, THE OWNER SHALL BE RESPONSIBLE FOR LANDSCAPE MAINTENANCE INCLUDING WATERING DURING PERIODS OF DROUGHT
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
20. PRE-PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED IT MAY BE NECESSARY TO PRE-DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.

PLANT SCHEDULE				
CODE	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREES				
AF	ACER FREEMANII	AUTUM BLAZE MAPLE	2-1/2" - 3"	CALIPER
GD	GYMNOCLADUS DIOICUS 'ESPROSSO'	KENTUCKY COFFEE	2-1/2" - 3"	CALIPER
LT	LIRIODENDRON TULIPIFERA	TULIP TREE	2-1/2" - 3"	CALIPER
QR	QUERCUS RUBRA	RED OAK	2-1/2" - 3"	CALIPER
MS	MALUS 'SUTYZAM'	SUGAR TYME CRABAPPLE	2" - 2-1/2"	CALIPER
MP	MALUS 'PRAIRIE FIRE'	PRAIRIE FIRE CRABAPPLE	2" - 2-1/2"	CALIPER
CK	CORNUS KOUSA	KOUSA DOGWOOD	2" - 2-1/2"	CALIPER
PG	PICEA GLAUCA	WHITE SPRUCE	7' - 8' HT	
PN	CASUARINA EQUISETIFOLIA	AUSTRALIAN PINE	7' - 8' HT	

LEGEND

PROPOSED DECIDUOUS TREE (W/ BARK MULCH)

PROPOSED DECICUOUS TREE (W/O BARK MULCH)



Tighe&Bond

STATE OF NEW HAMPSHIRE PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER 2/23/23

STATE OF NEW HAMPSHIRE NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER 2/23/23

SCALE IN FEET
0 60' 120'
GRAPHIC SCALE

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
D	2/23/2023	TAC Resubmission
C	2/6/2023	AoT Submission
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

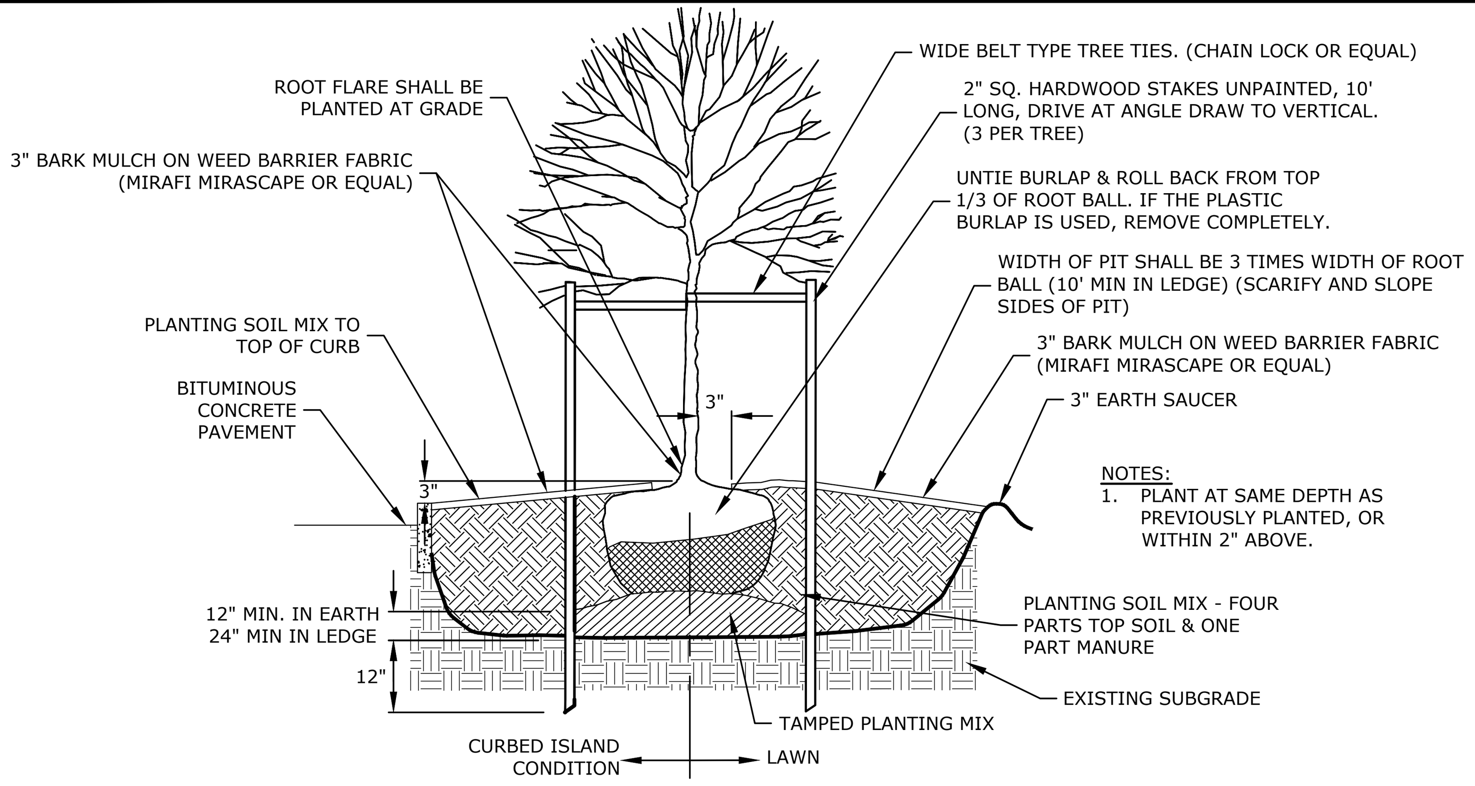
PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

OVERALL LANDSCAPE PLAN

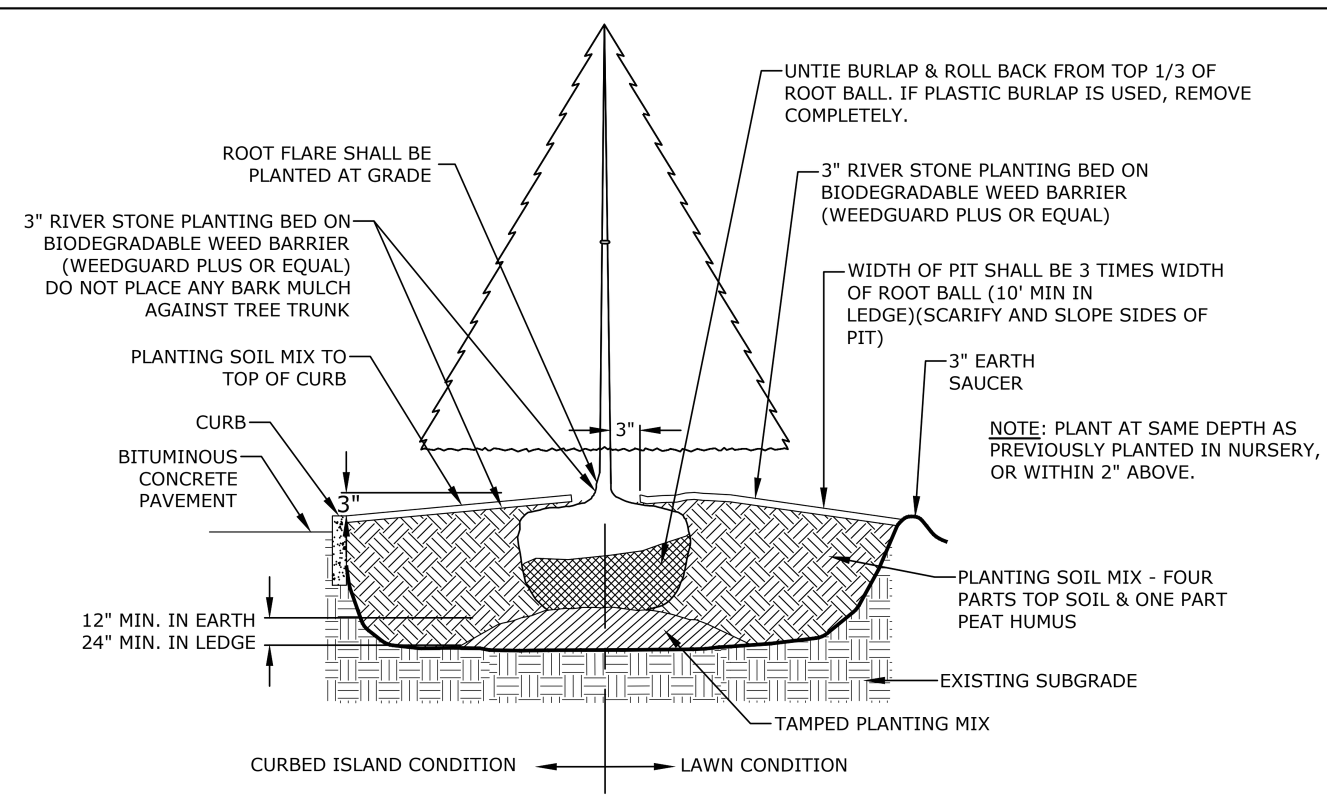
SCALE: AS SHOWN

C-105

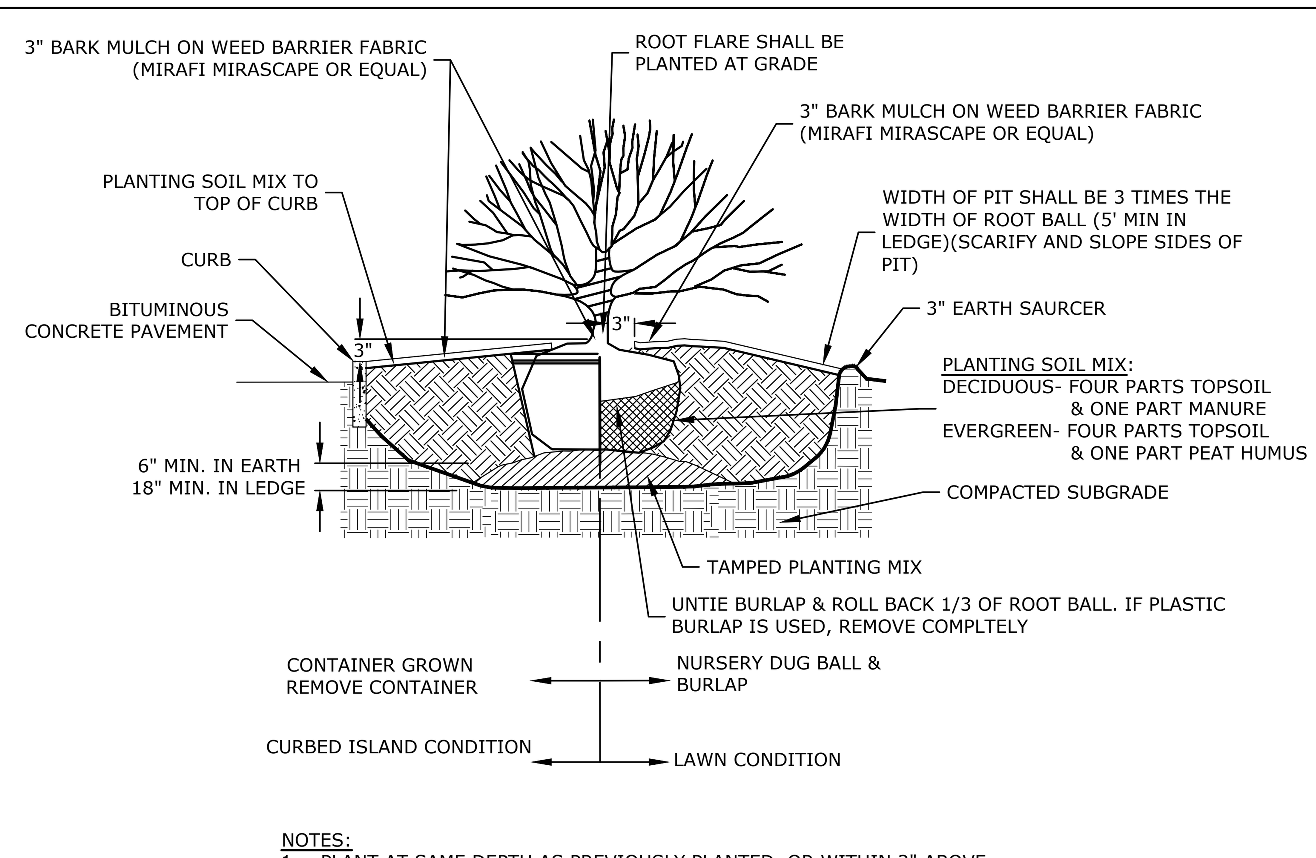
Last Save Date: February 23, 2023 10:46 AM By: CML
Plot Date: Thursday, February 23, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: O-Land



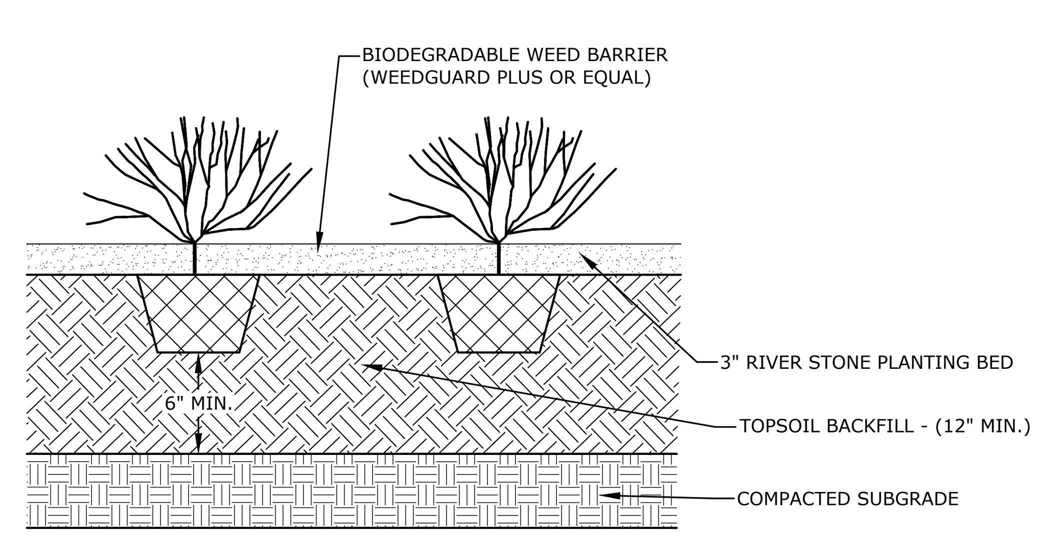
DECIDUOUS TREE PLANTING
NO SCALE



EVERGREEN TREE PLANTING
NO SCALE



SHRUB PLANTING
NO SCALE



PERENNIAL PLANTING
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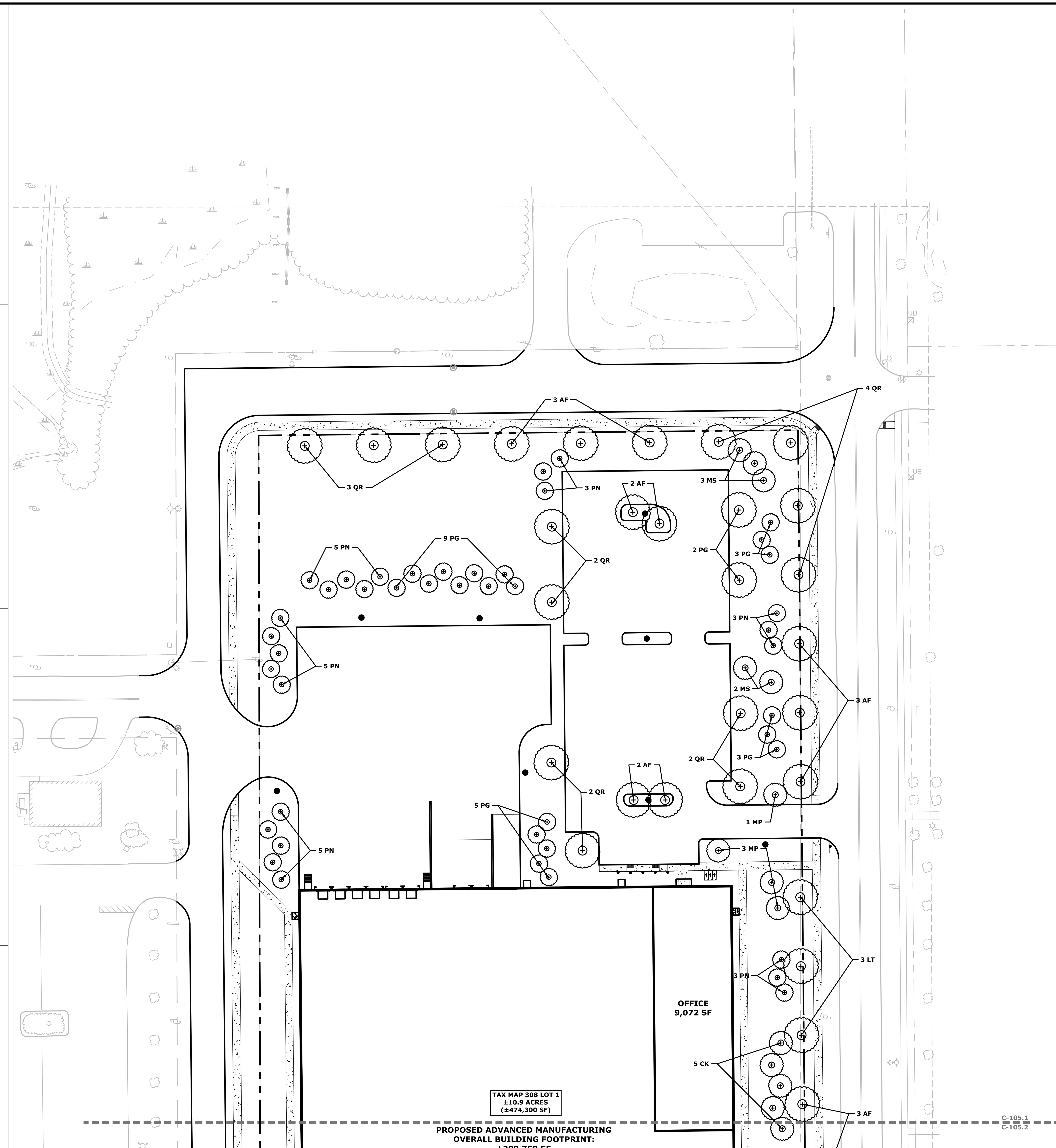

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Tighe&Bond

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

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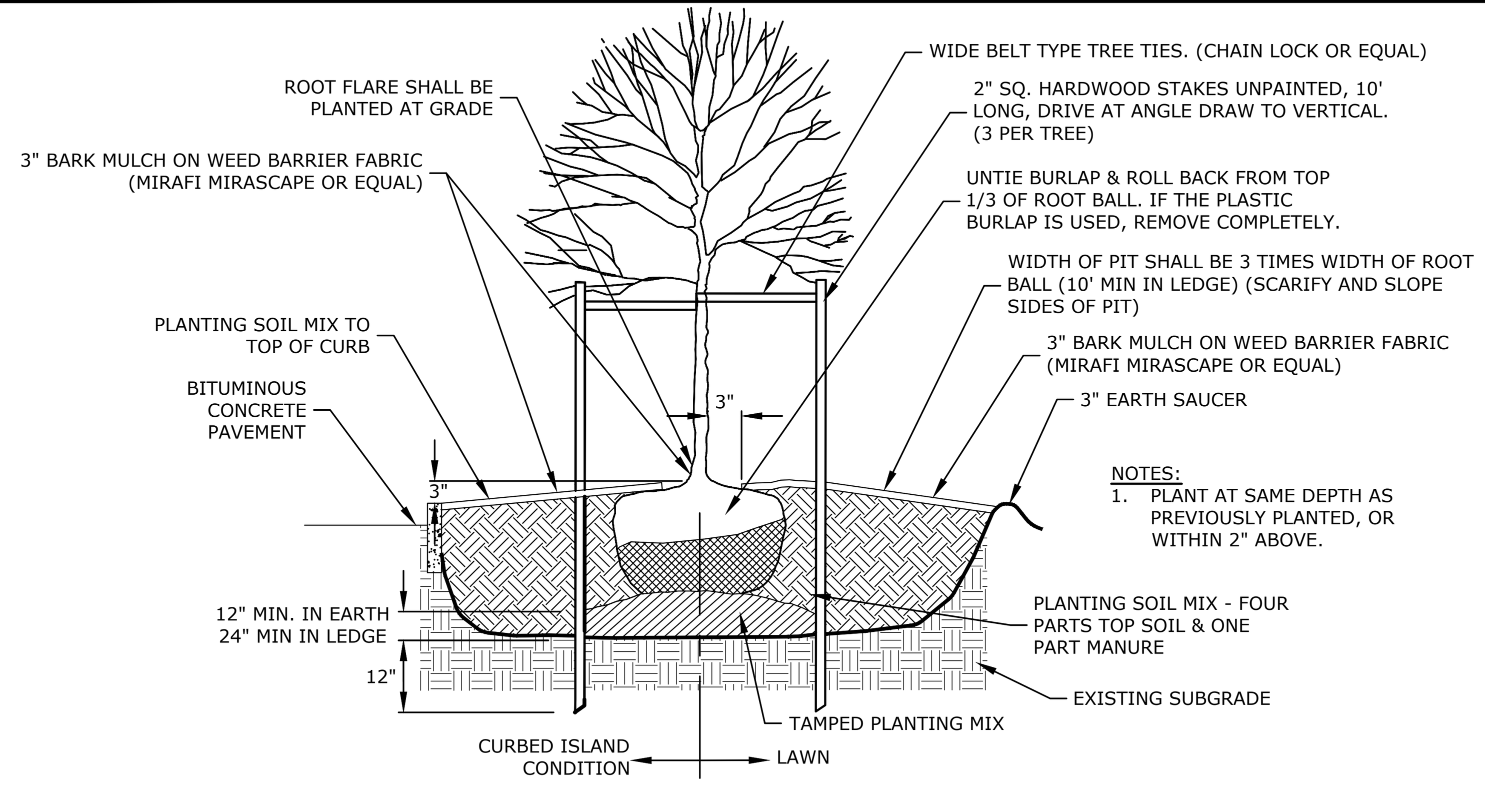
LANDSCAPE PLAN

SCALE: AS SHOWN

C-105.1



DECIDUOUS TREE PLANTING
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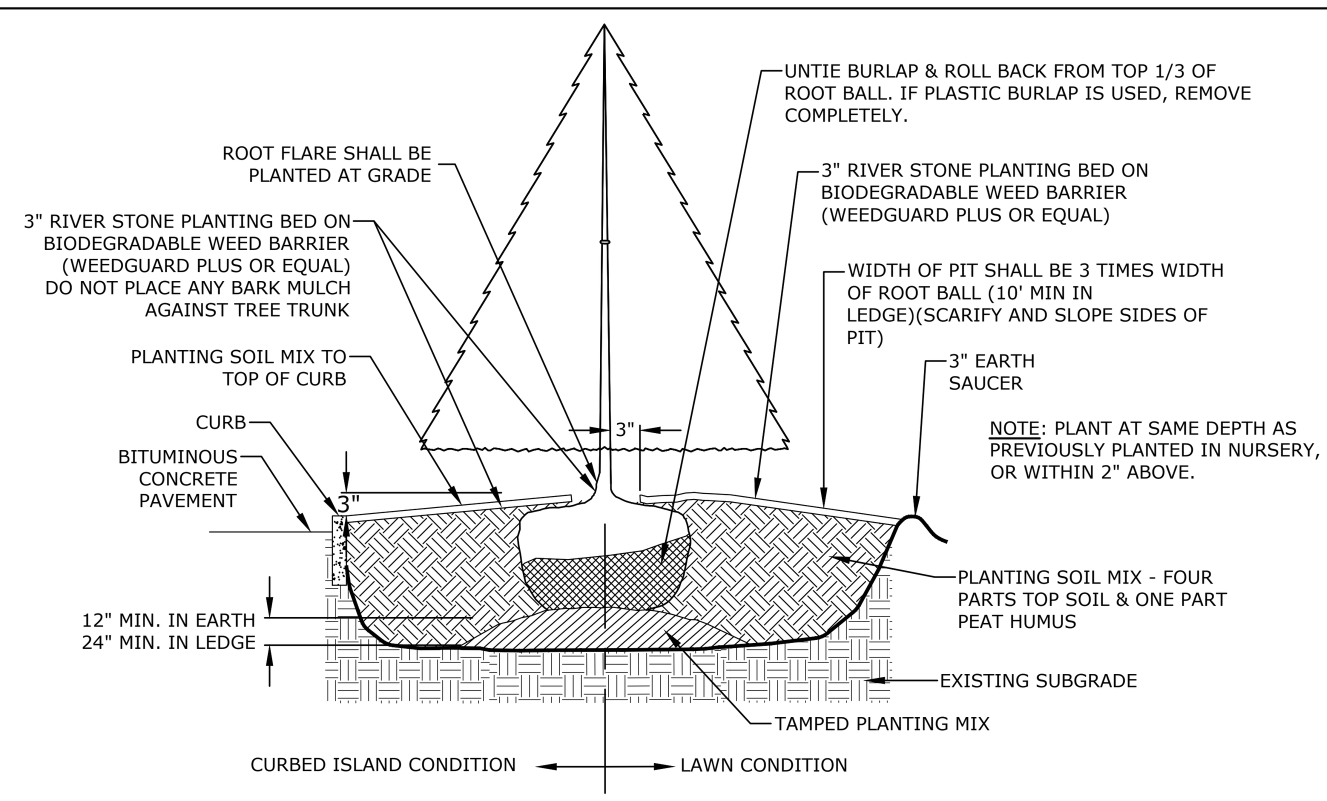

EVERGREEN TREE PLANTING
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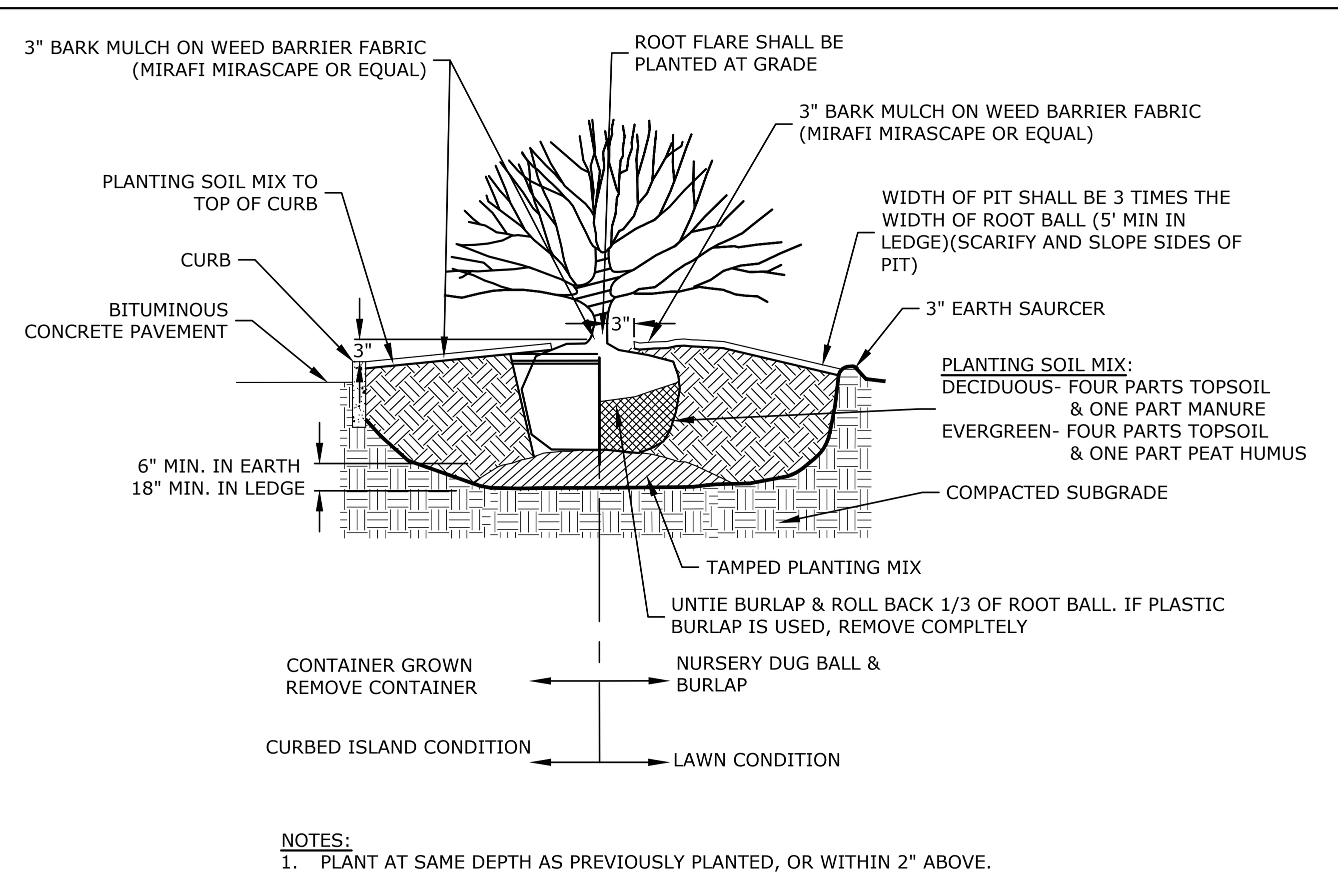

SHRUB PLANTING
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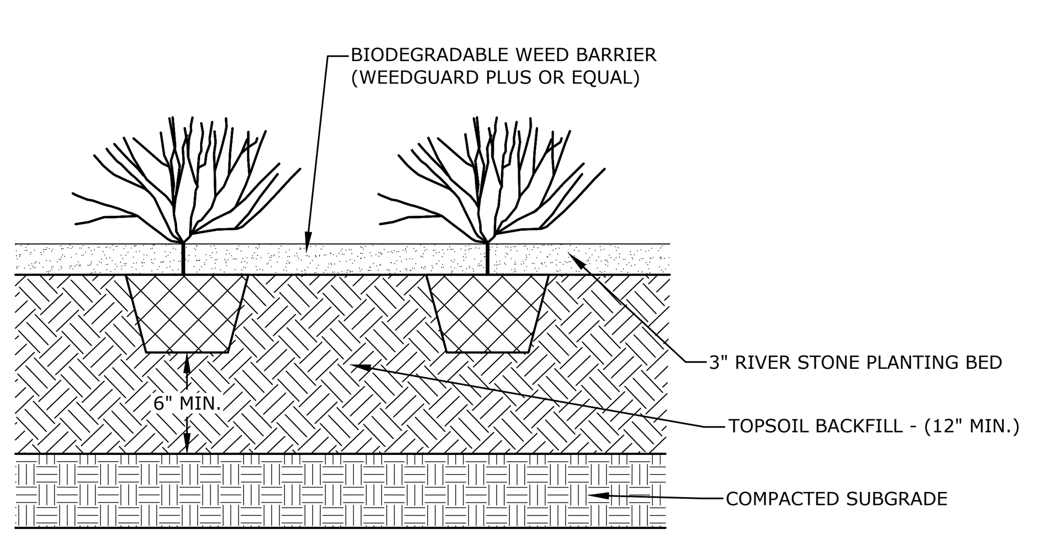
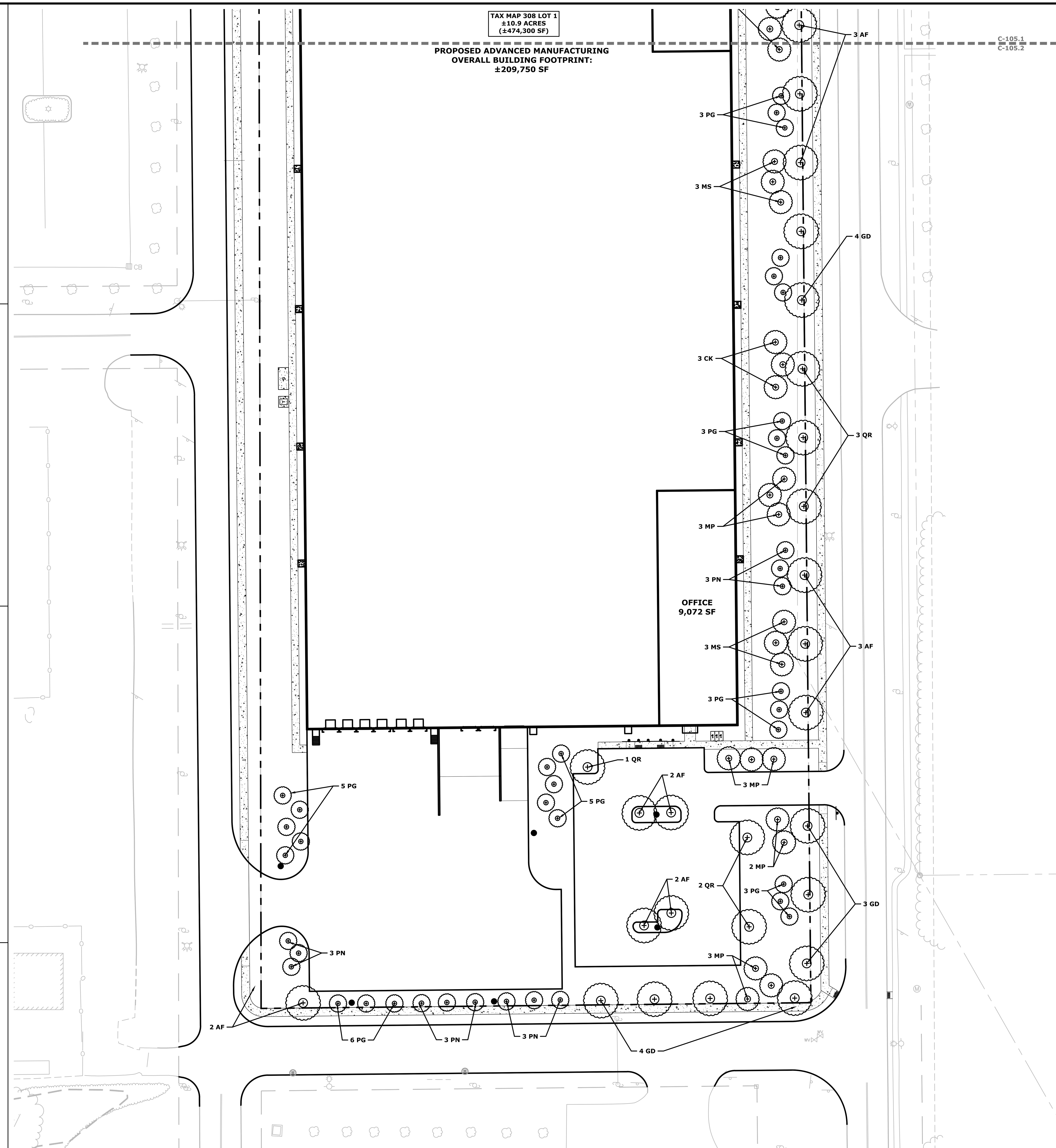


PERENNIAL PLANTING
NO SCALE



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0 40' 80'
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APPROVED:	PMC

LANDSCAPE PLAN

SCALE: AS SHOWN

C-105.2

Last Save Date: February 23, 2023 10:46 AM By: CML
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T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: Land-2

GENERAL PROJECT INFORMATION

PROJECT LESSOR: PEASE DEVELOPMENT AUTHORITY
55 INTERNATIONAL DRIVE
PORTSMOUTH, NH 03801
PROJECT APPLICANT: AVIATION AVENUE GROUP, LLC
210 COMMERCE WAY, SUITE 300
PROJECT NAME: PROPOSED ADVANCED MANUFACTURING FACILITY
PROJECT ADDRESS: 80 ROCHESTER AVE (100 NEW HAMPSHIRE AVE)
PORTSMOUTH, NH 03801
PROJECT MAP / LOT: MAP 308 / LOT 1
PROJECT LATITUDE: 43°04'49.9"N
PROJECT LONGITUDE: 70°48'33.6"W

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OR A NEW INDUSTRIAL WAREHOUSE ON A PREVIOUSLY DEVELOPED LOT THE WORK IS ANTICIPATED TO START IN SUMMER OF 2023, AND BE COMPLETED BY WINTER OF 2025.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 11.4 ACRES.

SOIL CHARACTERISTICS

BASED ON THE NRCS WEB SOIL SURVEY FOR ROCKINGHAM COUNTY - NEW HAMPSHIRE. THE SOILS ON SITE CONSIST OF URBAN LAND AS THE SITE HAS BEEN PREVIOUSLY DEVELOPED AND THE HYDROLOGIC SOIL GROUP RATING(S) IS ASSUMED TO BE "C".

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA OVERLAND FLOW TO A CLOSED DRAINAGE SYSTEM AND ULTIMATELY FLOWS TO NEWFIELDS DITCH.
(STATE WATERBODY ID: NHRIV600031001-10).

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CUT AND CLEAR TREES.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - CONTROL OF DUST
   - CONSTRUCTION OF ACCESS DRIVES
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
8. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
9. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
10. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
11. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
   E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, ITEM 304.2 HAVE BEEN INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   A. TEMPORARY SEEDING;
   B. MULCHING.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

DUST CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

STOCKPILES:

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:

1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
   B. SEEDING:
      a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
      b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
      c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
   C. MAINTENANCE:
      a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. PERMANENT MEASURES AND PLANTINGS:
   A. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
   B. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
   C. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
   D. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
   E. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
   F. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
   G. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
   H. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE	MINIMUM GERMINATION (%)	MINIMUM PURITY (%)
TALL FESCUE (*FESTUCA ARUNDINACEA*)	72 LBS/ACRE	85%	96%
SALTY ALKALI GRASS (*PUCCINELLIA TENUIFLORA*)	36 LBS/ACRE	85%	96%
RELIANT HARD FESCUE / CREEPING RED FESCUE	12 LBS/ACRE	85%	96%

IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.

3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:

1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
   A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
   B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
   C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
   D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

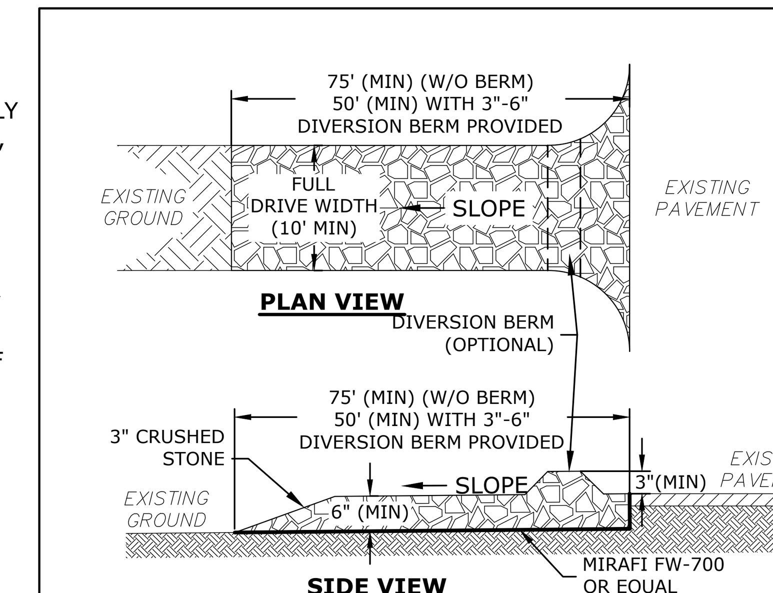
1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      b. ALL REGULATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE, ON AN IMPERVIOUS SURFACE;
      c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
      g. THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
   B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
      a. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
      b. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
      c. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLEUM PRODUCTS:
         - ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
         - PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
         - SECURE FUEL STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
         - INSPECT FUEL STORAGE AREAS WEEKLY;
         - WHENEVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS;
         - COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
         - SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
         - THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
           (1) EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
           (2) PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
           (3) HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
           (4) USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES;
           (5) PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
         - FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT SHALL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT, OR ITS SUCCESSOR DOCUMENT.
           HTTPS://WWW.DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF
      b. FERTILIZERS:
         - FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
         - ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
         - STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
         - PAINTS:
         - ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
         - EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
         - EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
   D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
      a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
      b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
      c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
      d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
      e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
      f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
      a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPMENT/VEHICLE FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
      b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
      c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
      d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
      e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
      f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

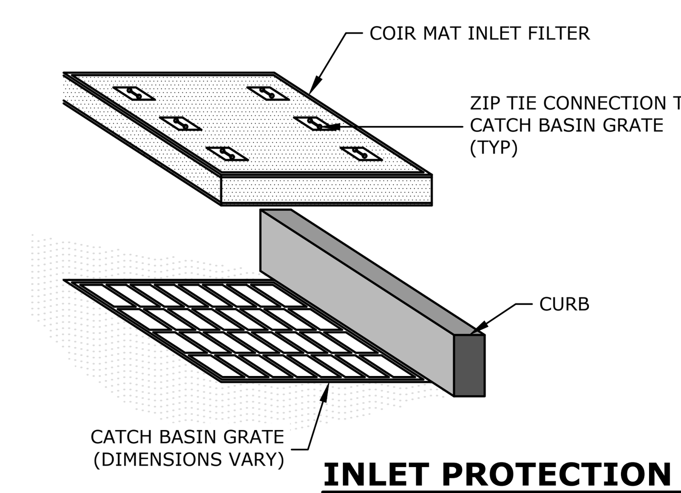
EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

1. THIS PROJECT EXCEEDS ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRES CONSTRUCTION GENERAL PERMIT (CGP), FILING OF AN NOTICE OF INTENT (NOI), AND THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
2. THE SWPPP SHALL BE PREPARED BY A QUALIFIED ENGINEER. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ONSITE AT ALL TIMES.
3. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
   A. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY A QUALIFIED PERSON AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
   B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
   C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
   D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.



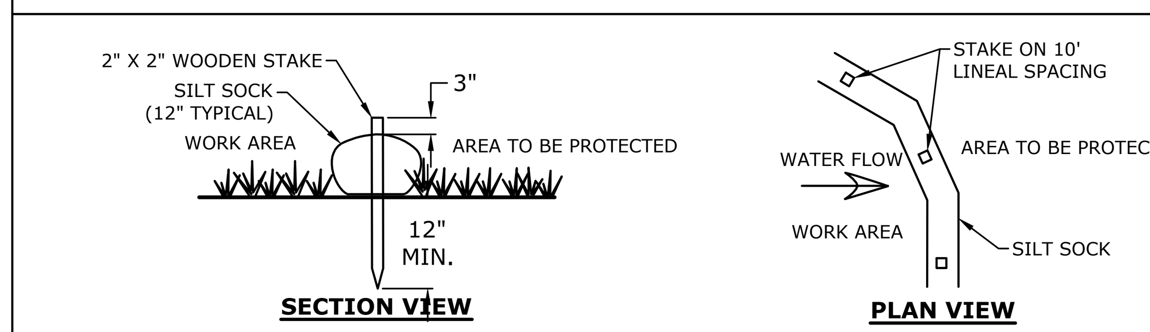
NOTES:
1. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

STABILIZED CONSTRUCTION EXIT
NO SCALE



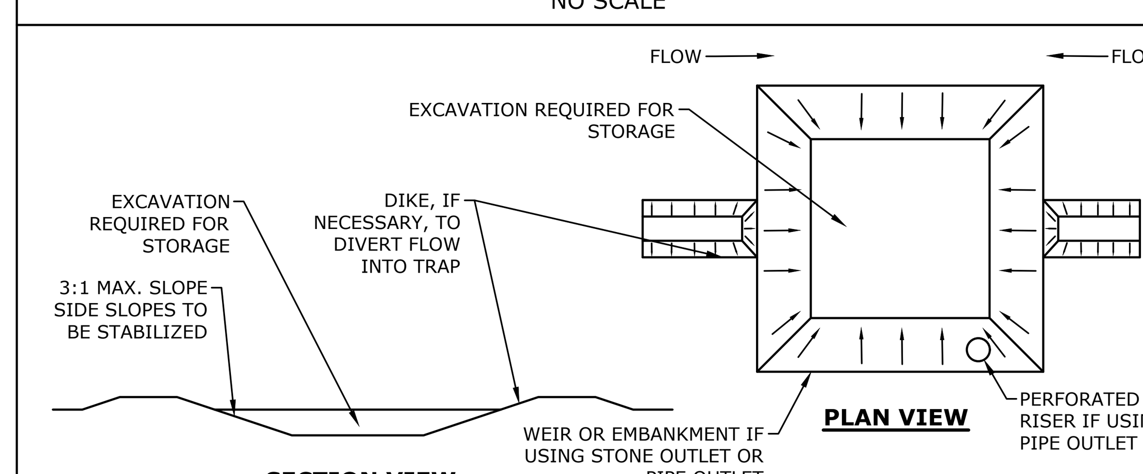
NOTES:
1. COIR MAT INLET FILTER SHALL BE STORM WATER INLET FILTER BY BLOCKSOM & CO. OR APPROVED EQUAL.
2. INSTALL AND MAINTAIN INLET PROTECTION IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

INLET PROTECTION BARRIER
NO SCALE



NOTES:
1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL.
2. SILT SOCK SHALL BE FILLED WITH FILTERMEDIA BY FILTREXX OR APPROVED EQUAL.
3. WHERE TWO SILT SOCKS ARE JOINED, A MINIMUM OF 2 FEET OF OVERLAP SHALL BE MAINTAINED.
4. SILT SOCKS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

SILT SOCK
NO SCALE



NOTES:
1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING AREA TO A SINGLE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. TRAP OUTLET SHALL BE MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
5. TRAP SHALL DISCHARGE TO A STABILIZED AREA.
6. TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.
8. SEDIMENT TRAPS MUST BE USED AS NEEDED TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.

SEDIMENT TRAP
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
2/23/23

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED
PROFESSIONAL ENGINEER
2/23/23

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
D	2/23/2023	TAC Resubmission
C	2/6/2023	AoT Submission
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DETAILS.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

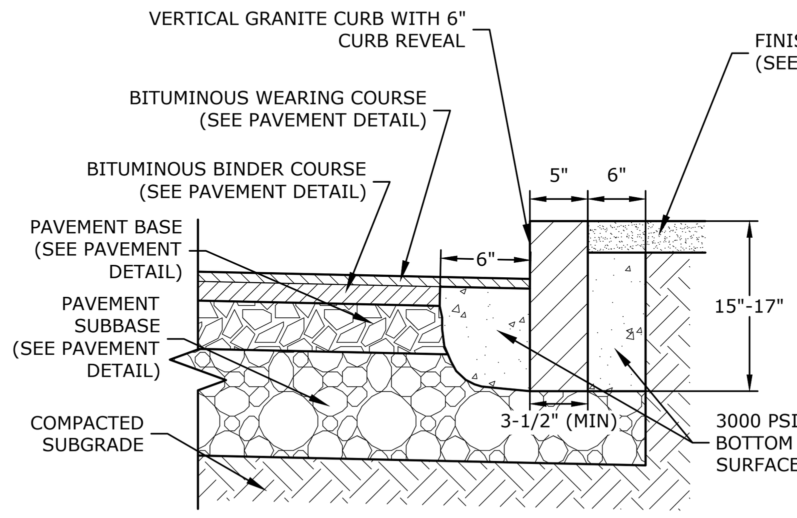
EROSION CONTROL NOTES & DETAILS SHEET

SCALE: AS SHOWN

C-501

Last Save Date: February 23, 2023 9:43 AM By: CML
Plot Date: Thursday, February 23, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Details.DWG Layout Tab: C-501

Tighe&Bond

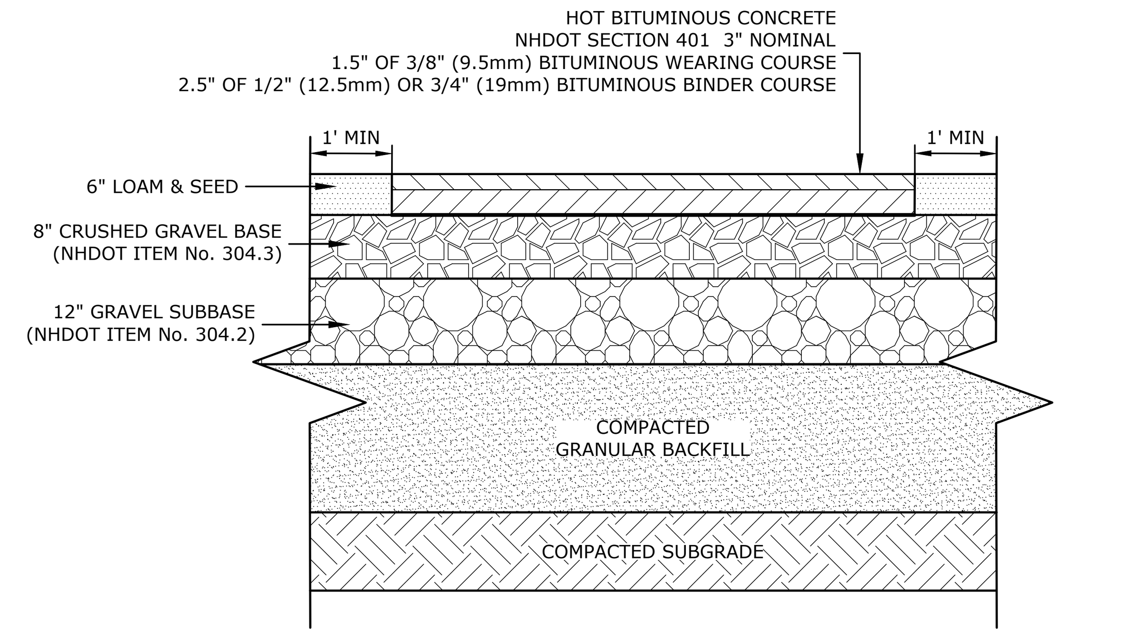


CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

VERTICAL GRANITE CURB

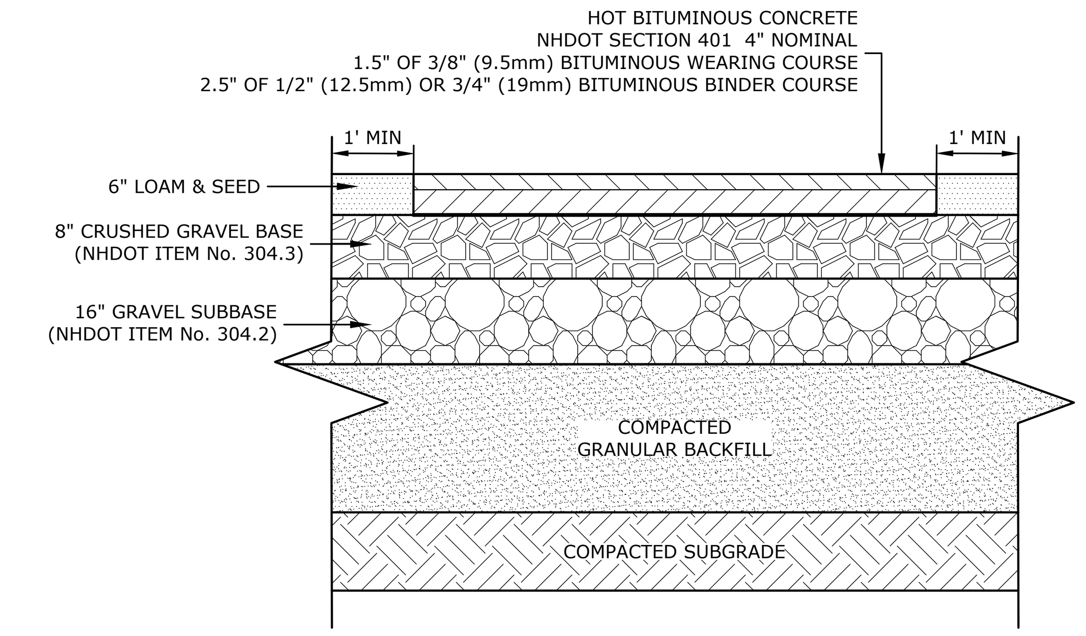
NO SCALE



NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. FINAL PAVEMENT SECTION DESIGN SHALL BE APPROVED BY THE PROJECTS GEOTECHNICAL ENGINEER.

TYPICAL STANDARD DUTY PAVEMENT SECTION

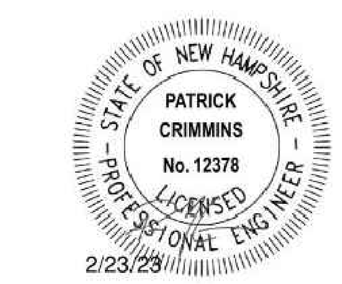
NO SCALE

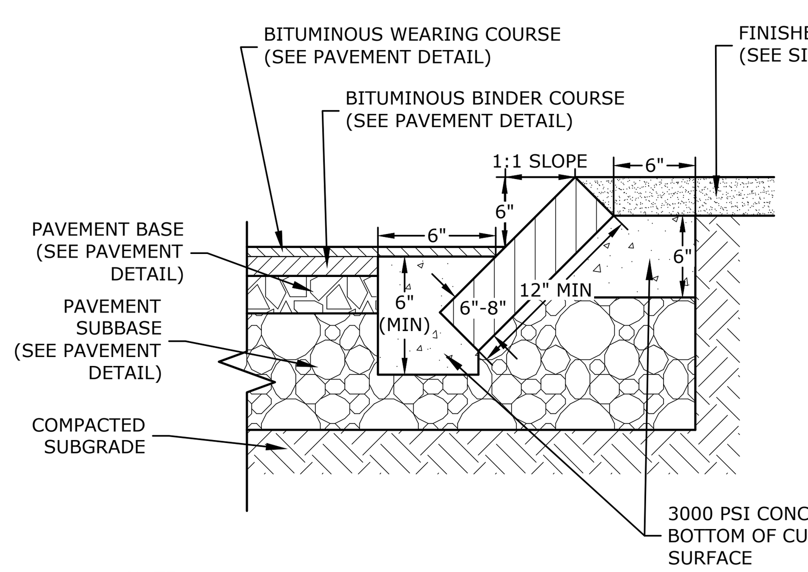


NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. FINAL PAVEMENT SECTION DESIGN SHALL BE APPROVED BY THE PROJECTS GEOTECHNICAL ENGINEER.

TYPICAL HEAVY DUTY PAVEMENT SECTION

NO SCALE



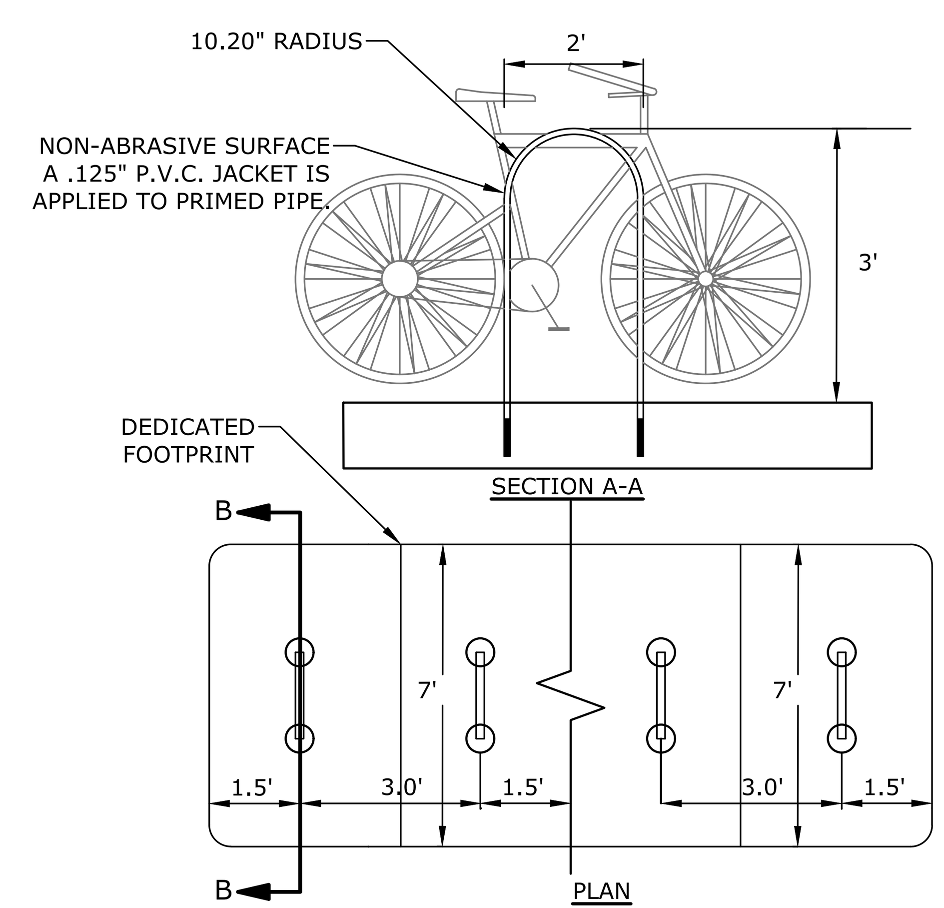


CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<2'	USE CURVED CURB
2'-15'	USE RADIAL JOINTS
16'-28'	1'-6"
29'-41	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
>110'	8'

NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF SLOPED GRANITE CURB (SGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

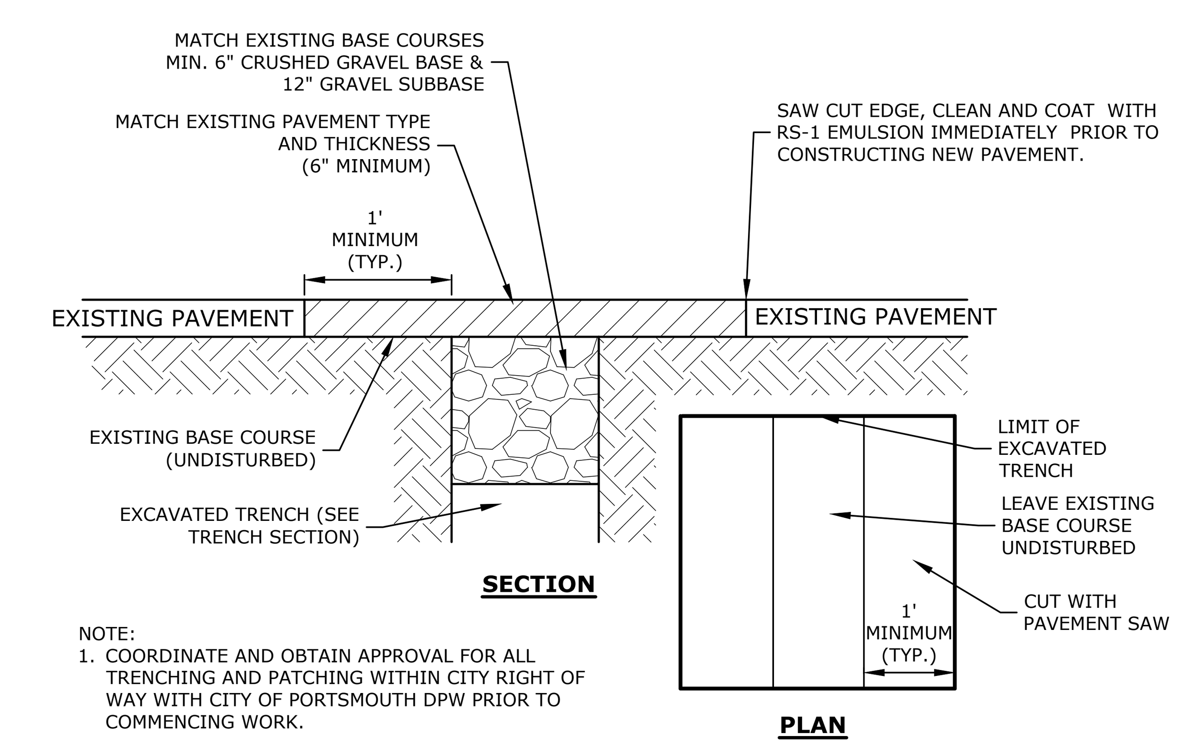
SLOPED GRANITE CURB

NO SCALE



BIKE RACK

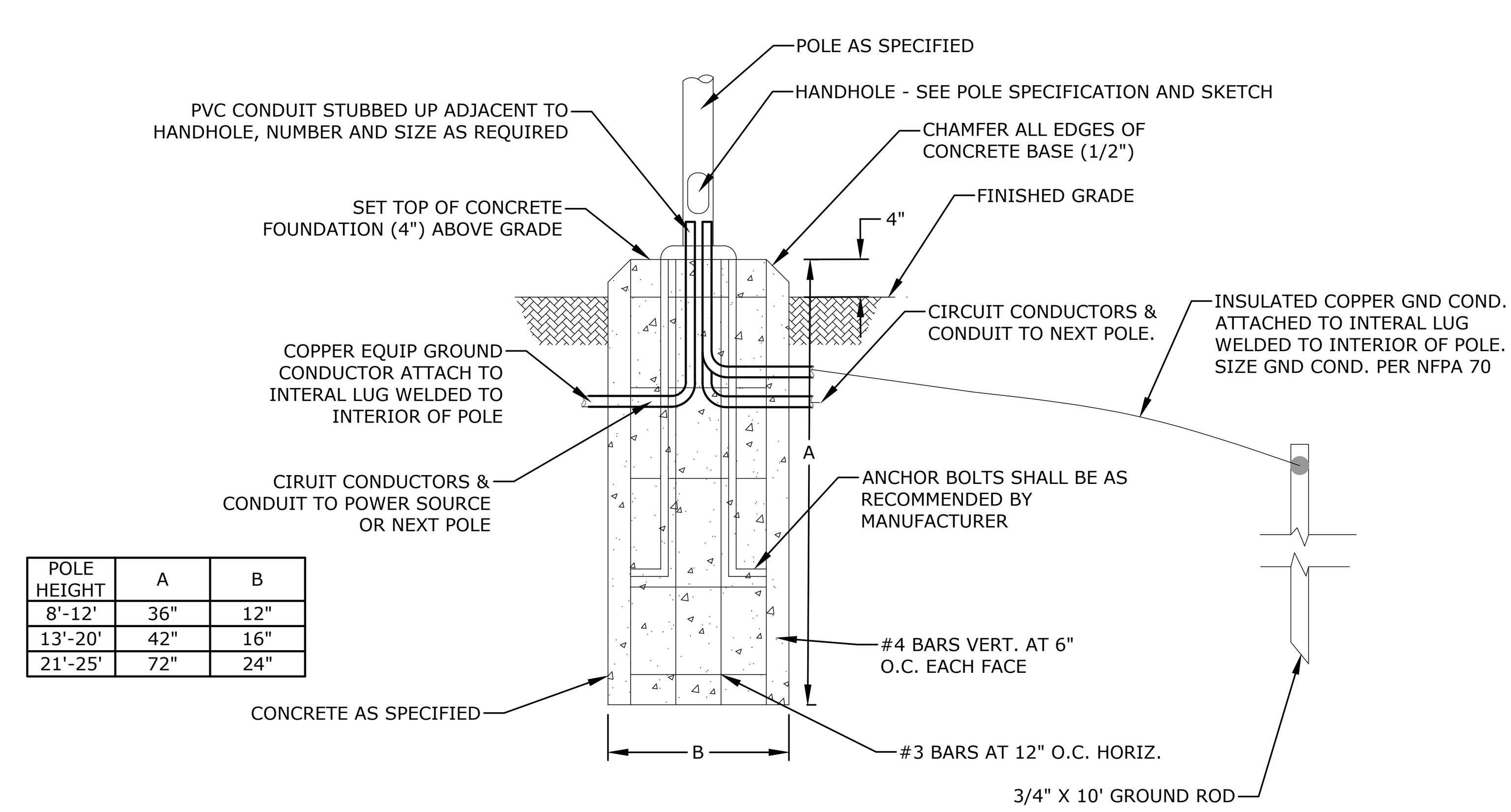
NO SCALE



NOTE:
1. COORDINATE AND OBTAIN APPROVAL FOR ALL TRENCHING AND PATCHING WITHIN CITY RIGHT OF WAY WITH CITY OF PORTSMOUTH DPW PRIOR TO COMMENCING WORK.

ROADWAY TRENCH PATCH

NO SCALE

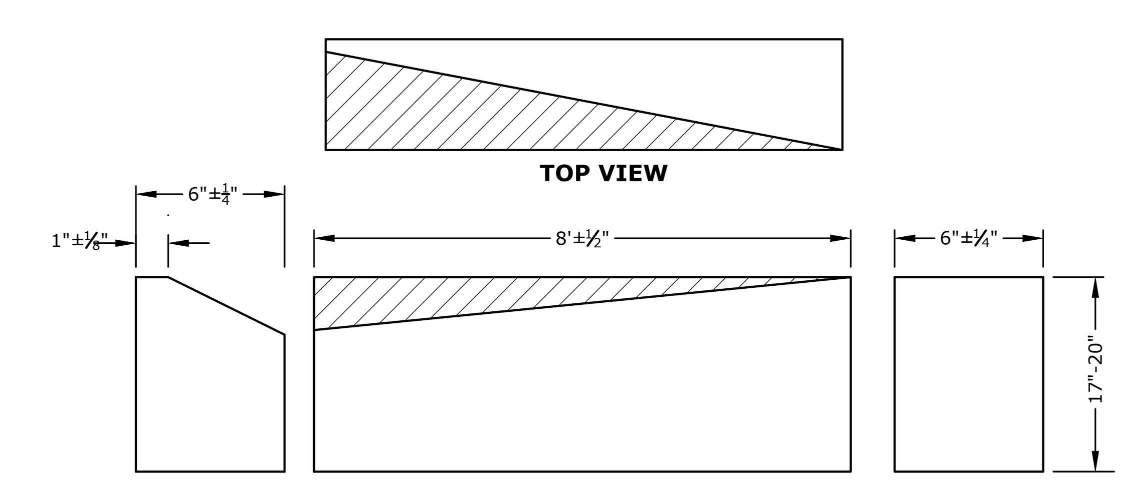


POLE HEIGHT	A	B
8'-12'	36"	12"
13'-20'	42"	16"
21'-25'	72"	24"

NOTES:
1. ALL LIGHT POLES, LUMINAIRES, AND WIRE TO BE FURNISHED AND INSTALLED BY THE POWER COMPANY, UNLESS OTHERWISE DIRECTED.
2. ANCHOR BOLTS, GROUND ROD & GROUND WIRE TO BE FURNISHED BY THE POWER COMPANY AND INSTALLED BY THE CONTRACTOR, UNLESS OTHERWISE DIRECTED.
3. BOLT CIRCLE DIAMETER SHALL BE VERIFIED WITH THE POWER COMPANY.
4. ALL BASES SHALL BE LOCATED 10'-0" (TO CENTER) FROM FACE OF CURB OR EDGE OF PAVED SHOULDER, UNLESS OTHERWISE NOTED.
5. REINFORCEMENT SHALL CONFORM TO SECTION 544 OF THE STANDARD SPECIFICATIONS.
6. ANY ANCHOR BOLTS DAMAGED DURING INSTALLATION SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER.
7. UPON INSTALLATION, ANCHOR BOLT THREADS SHALL BE CLEANED WITH A WIRE BRUSH.
8. TERRAIN SURROUNDING BASE MUST BE GRADED AS SHOWN IN DETAIL "A" TO PREVENT IMPACTING VEHICLES FORM SNAGGING ON BASE.

TYPICAL LIGHT POLE BASE

NO SCALE



TRANSITION SECTION

GRANITE SLOPE CURB TO VERTICAL GRANITE CURB

NOTES:
1. THE INTENT OF THIS ITEM IS TO PROVIDE A SMOOTH TRANSITION BETWEEN STRAIGHT GRANITE CURB AND SLOPE CURB WITHOUT REQUIRING FIELD CHIPPING DURING INSTALLATION. THE SLOPE CURB MAY REQUIRE ADJUSTMENTS TO MEET THE TRANSITION PIECE HEIGHT. TRANSITION SLOPE CURB TO STANDARD REVEAL AS QUICKLY AS POSSIBLE TO PROVIDE FOR THIS SMOOTH TRANSITION.

CURB TRANSITION

NO SCALE

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
D	2/23/2023	TAC Resubmission
C	2/6/2023	AoT Submission
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DETAILS SHEET

SCALE: AS SHOWN

C-502

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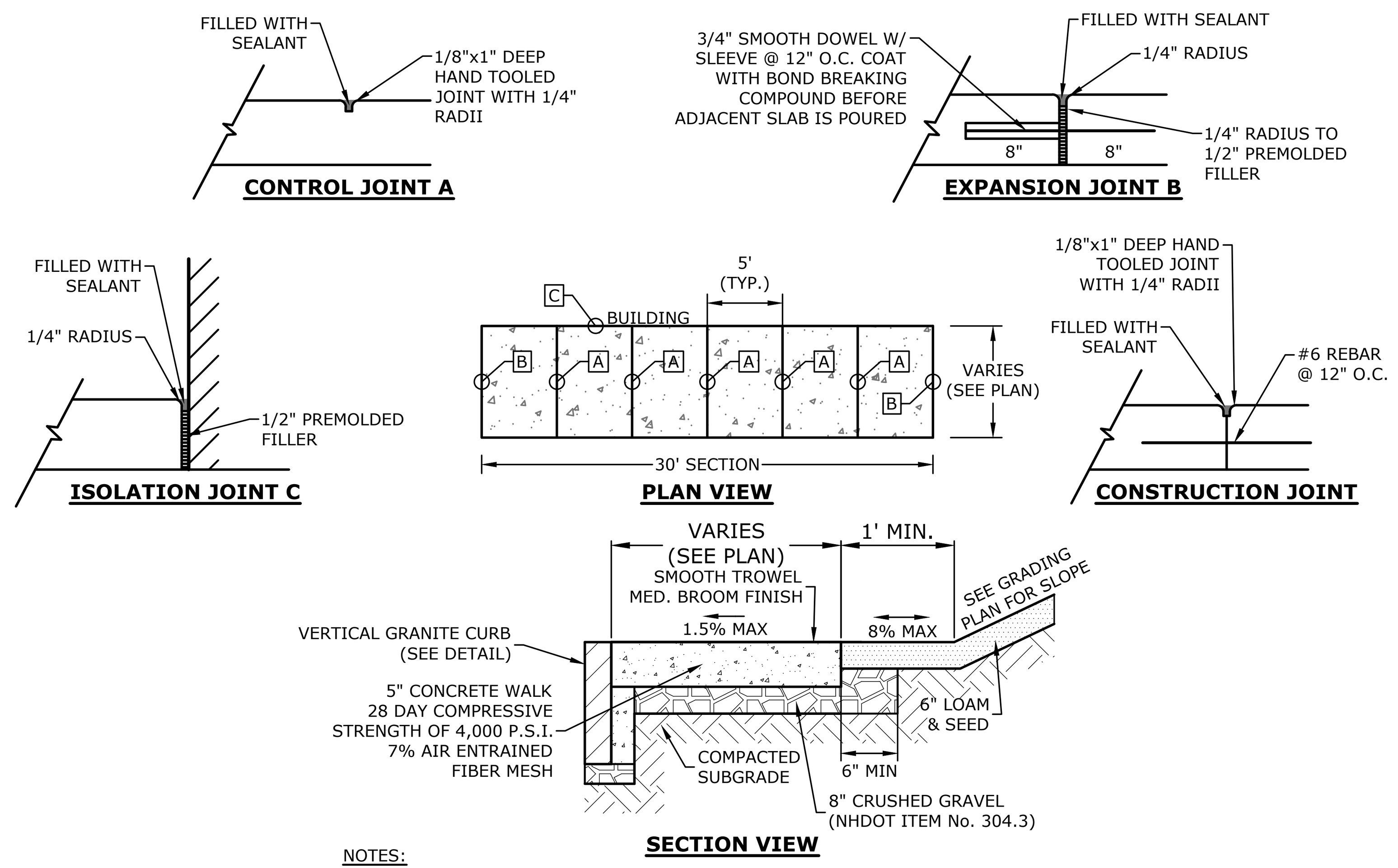
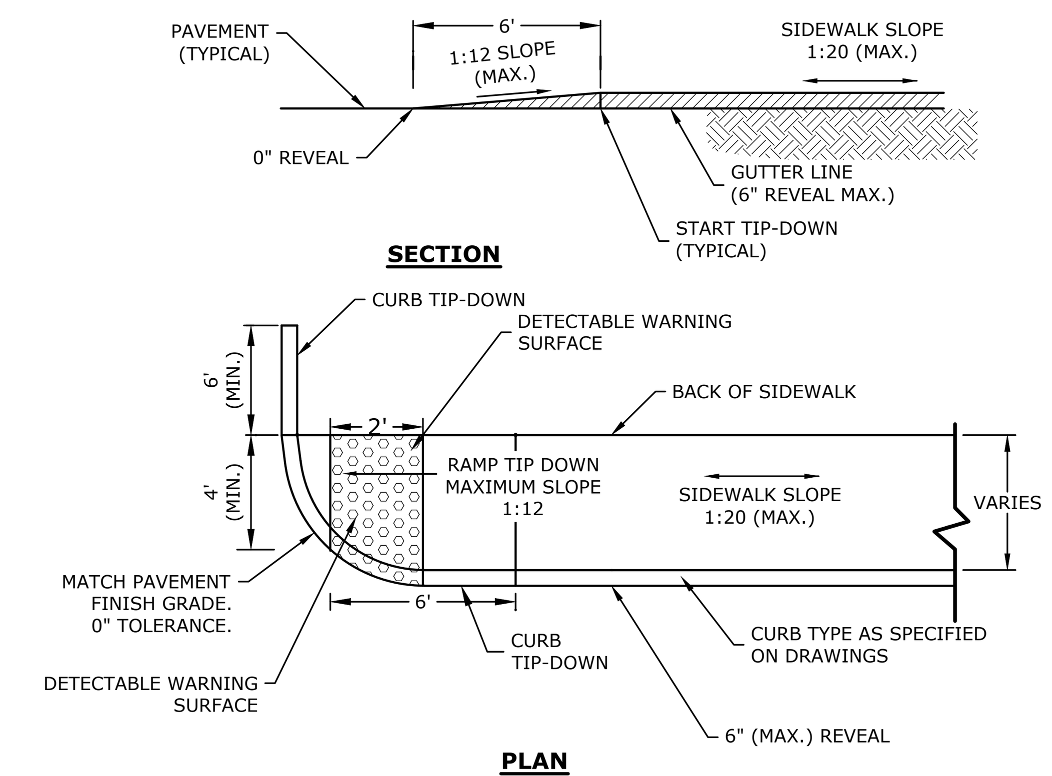


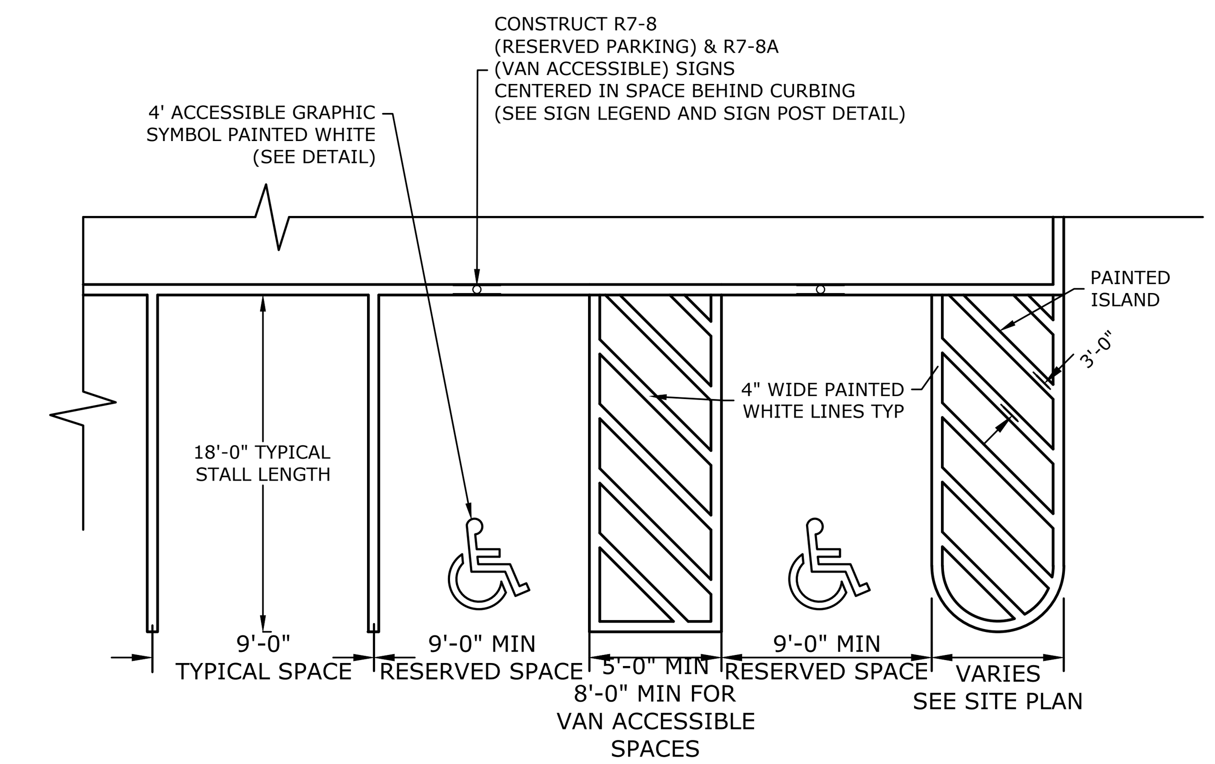
NOTES:
1. SEE SITE PLAN FOR SIDEWALK WIDTH AND LOCATIONS.
2. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR WALK AND SIDE SLOPE GRADES.
3. ISOLATION JOINTS ADJACENT TO BUILDING SHALL BE COORDINATED WITH BUILDING DRAWINGS.

CONCRETE SIDEWALK WITH GRANITE CURB
NO SCALE



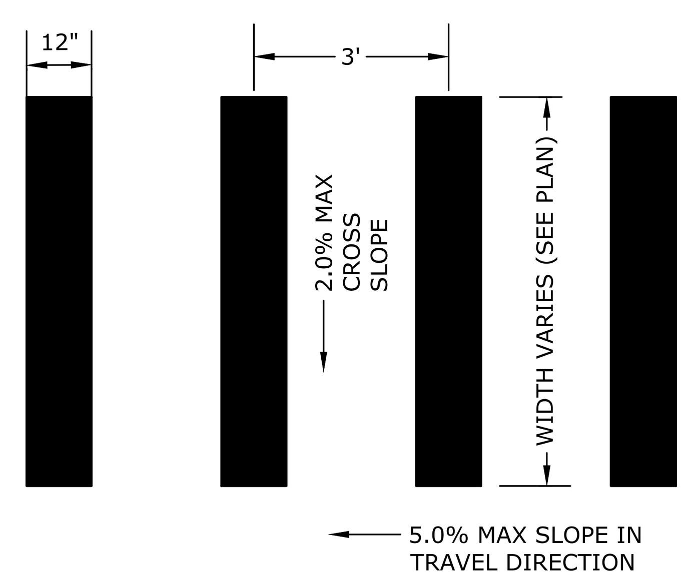
NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. PROVIDE 8" COMPACTED CRUSHED GRAVEL BASE BENEATH RAMPS.
3. DETECTABLE WARNING STRIP SHALL BE ADA SOLUTIONS, INC. CAST IN PLACE RAMP. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

CONCRETE SIDEWALK TIP-DOWN RAMP WITH DETECTABLE WARNING PANEL
NO SCALE



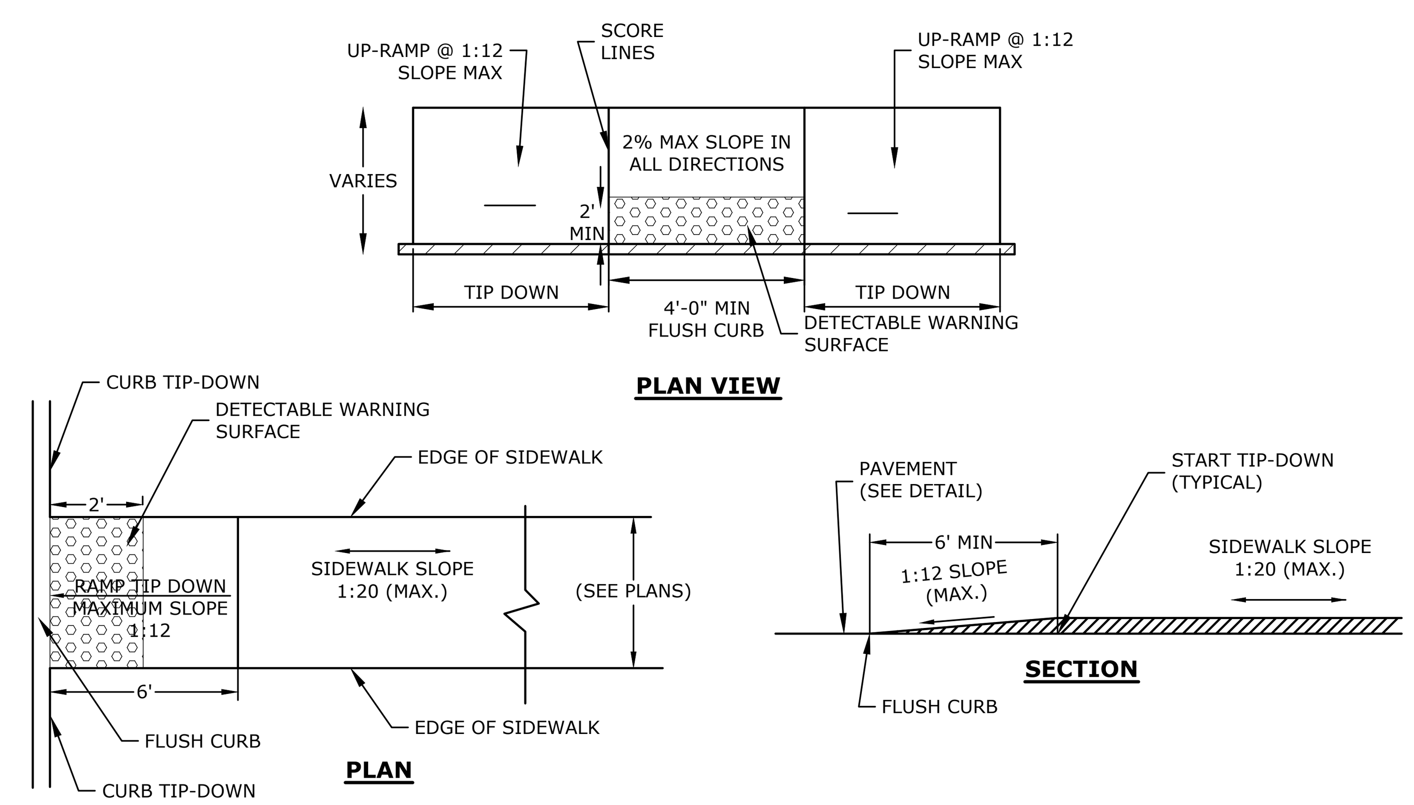
NOTE:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
3. FINISH PAVEMENT GRADES AT ALL HANDICAP ACCESSIBLE STALLS AND PAINTED ACCESS AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.

PARKING SPACE STRIPING
NO SCALE



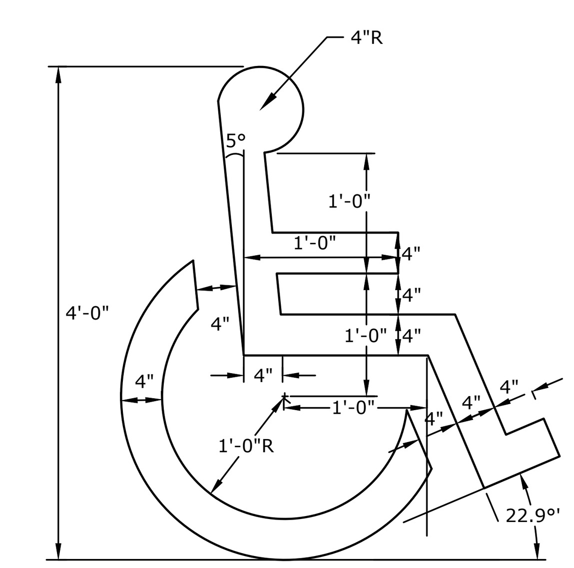
NOTE:
STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

CROSSWALK STRIPING
NO SCALE



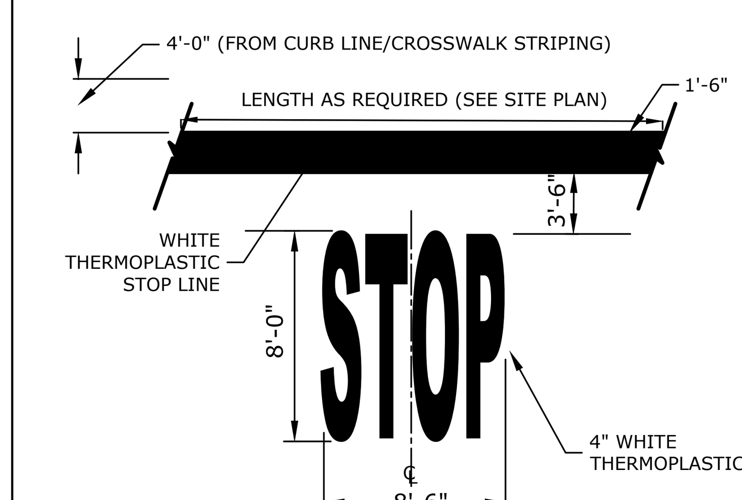
NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. A 8" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
3. DETECTABLE WARNING PANEL SHALL BE CAST IRON WITH BLACK COATING

CONCRETE SIDEWALK TIP-DOWN RAMP WITH DETECTABLE WARNING PANEL
NO SCALE



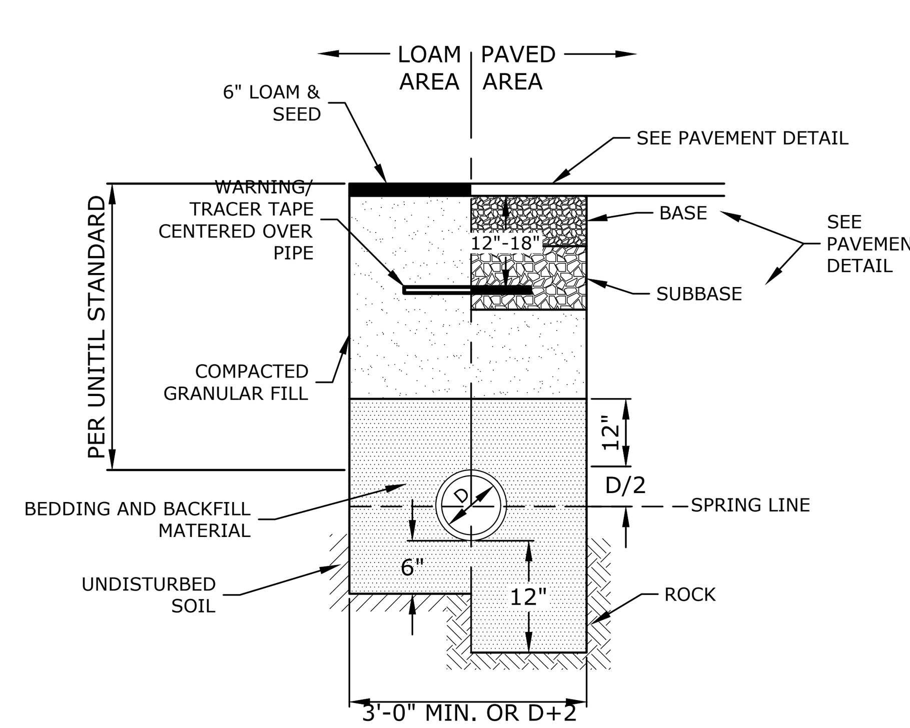
NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL
NO SCALE



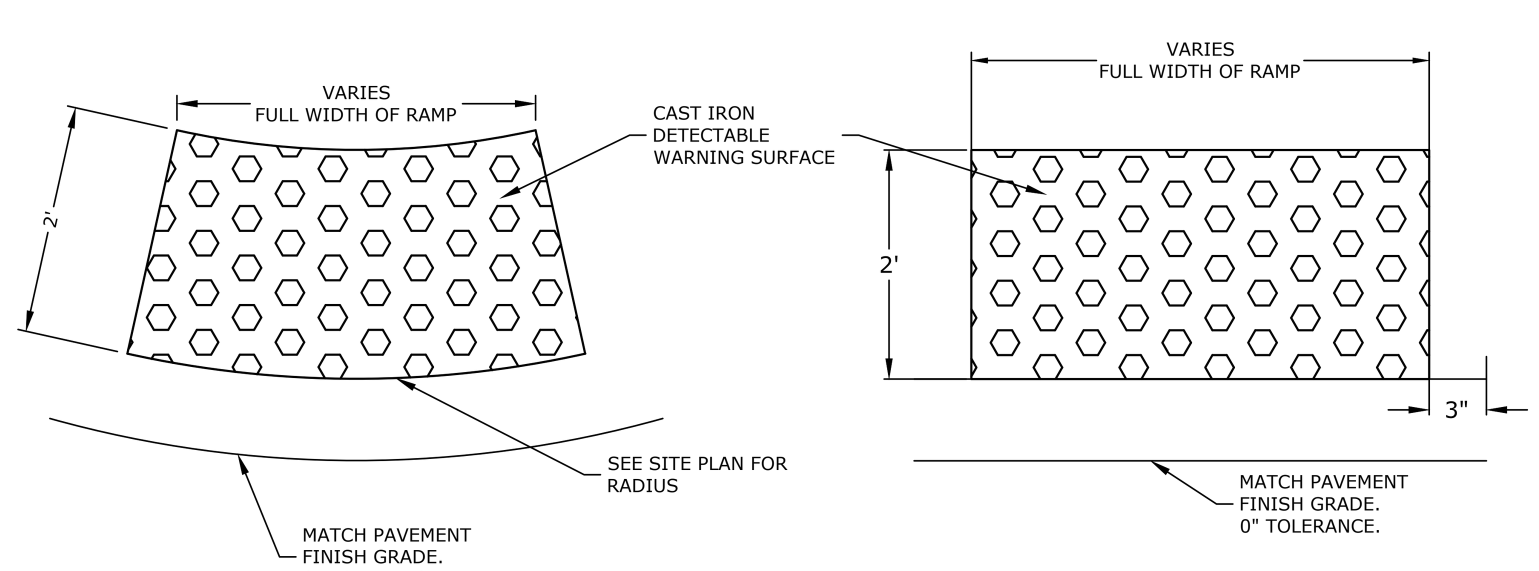
NOTE:
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
2. STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

STOP BAR & LEGEND
NO SCALE



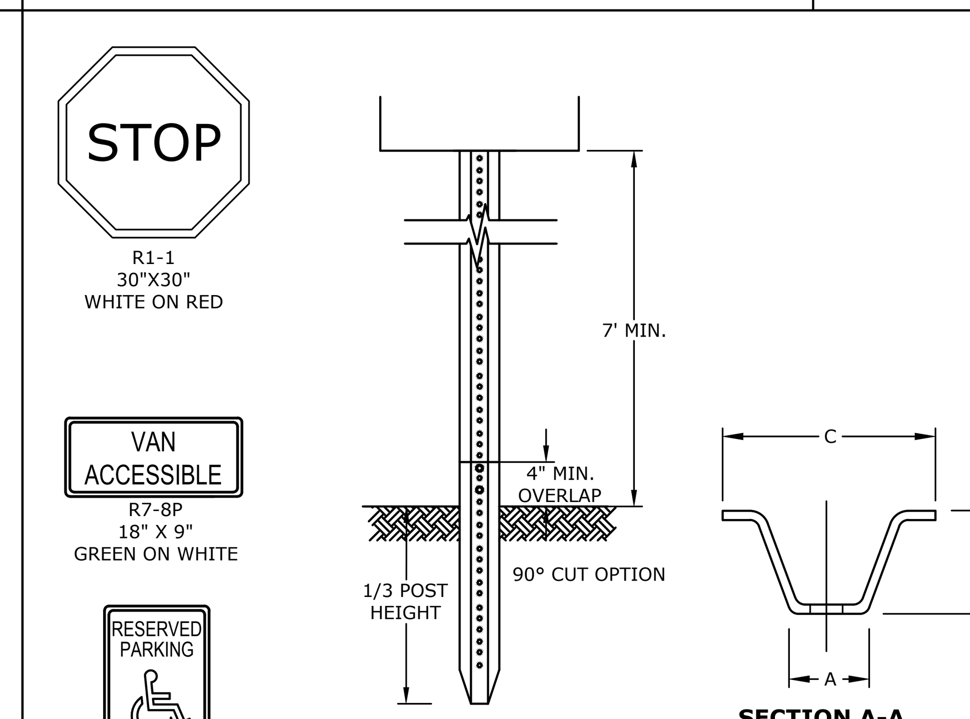
NOTE:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. GAS SHALL BE INSTALLED PER UNITIL STANDARDS. COORDINATE ALL INSTALLATIONS WITH UNITIL AND THE CITY OF PORTSMOUTH.

TYPICAL GAS TRENCH
NO SCALE



NOTES:
1. DETECTABLE WARNING SURFACE SHALL BE 2' X 3' CAST IRON PANEL SET IN CONCRETE.
2. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

CAST IRON DETECTABLE WARNING SURFACE
NO SCALE



WT.	A	B	C
3 LBS	1 5/8" OR 1 5/16"	1 3/4" OR 1 7/8"	3 1/2"
4 LBS	1 5/8"	1 3/4"	3 1/2"

* IN LEDGE DRILL & GROUT TO A MIN OF 2'

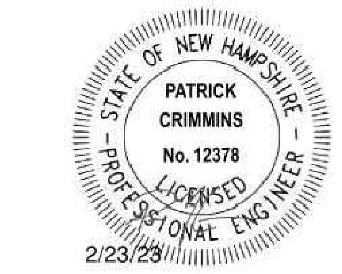
SIGN POST TO COMPLY WITH ALL ASPECTS OF NHDOT SECTION 615.

LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

NOTES:
1. STEEL FOR POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499-81 GRADE 60 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1-76 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A 123.
3. ALL SIGN POSTS SHALL HAVE "BREAKAWAY" FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS-1985." THE "BREAKAWAY" FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 MPH WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
4. TYPE A POSTS - 3 LB/FT TYPE B POSTS - 4 LB/FT.
5. ALL SIGNS TO BE CONSTRUCTED PER THE LATEST EDITION OF THE FHWA STANDARD HIGHWAY SIGNS MANUAL AND INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
6. MEET REQUIREMENTS OF SECTION 615 SIGNS OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2010 EDITION, AS AMENDED.

SIGN LEGEND & POST
NO SCALE

Tighe&Bond



Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
D	2/23/2023	TAC Resubmission
C	2/6/2023	AoT Submission
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DETAILS.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

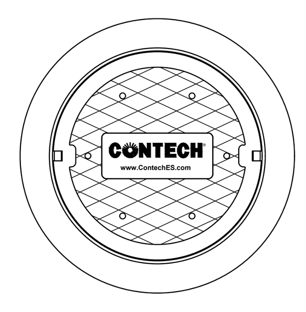
DETAILS SHEET

SCALE: AS SHOWN

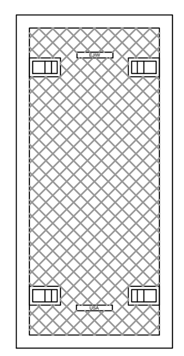
C-503

Last Save Date: February 23, 2023 9:43 AM By: CML
Plot Date: Thursday, February 23, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Details.DWG Layout Tab: C-503

JELLYFISH DESIGN NOTES				
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD				
CARTRIDGE SELECTION				
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	7.84	5.88	3.92	2.16
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00

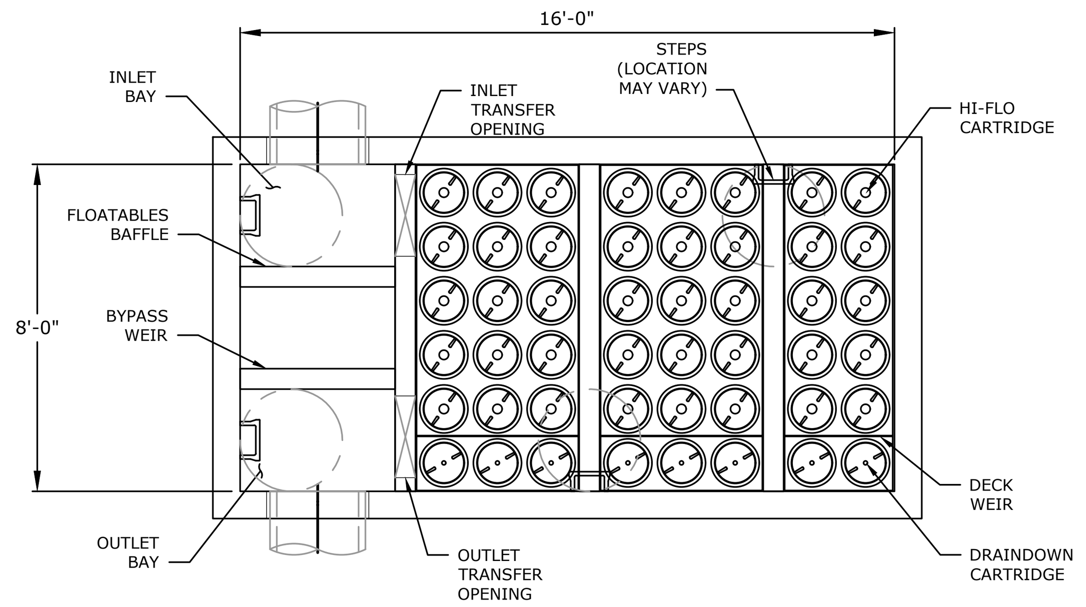


FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

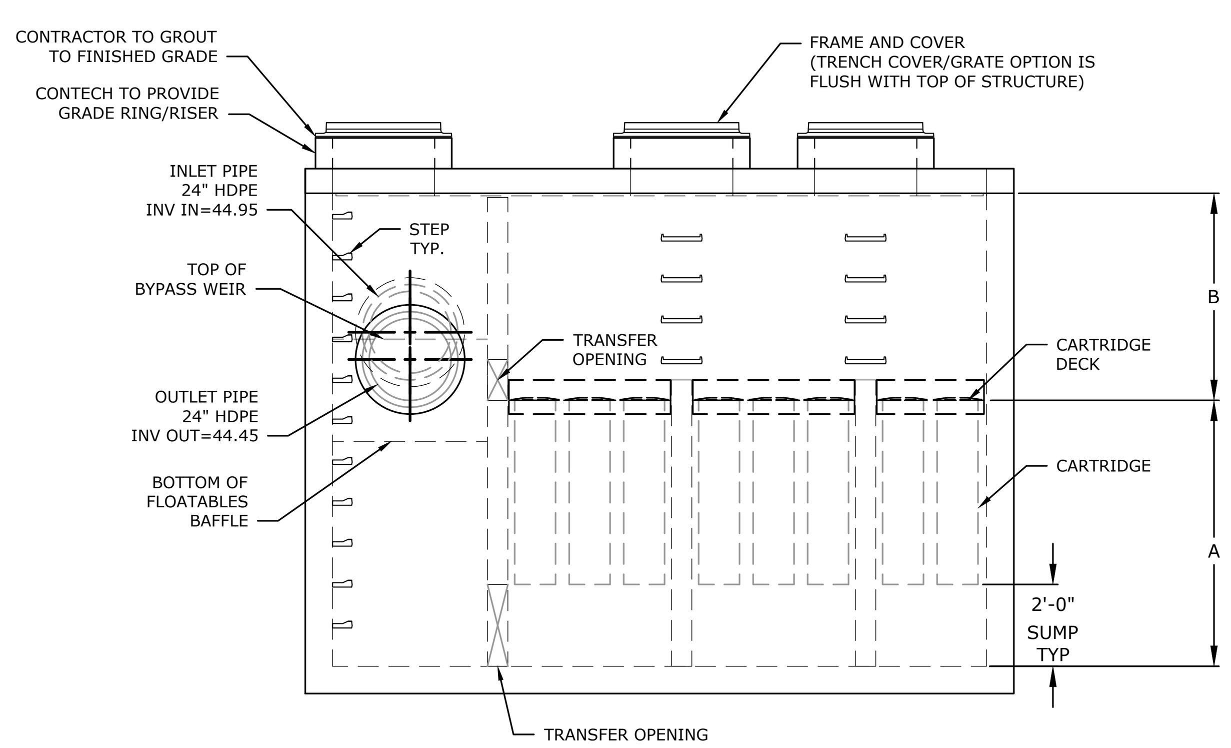


24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS	
STRUCTURE ID	JFPD0816
WATER QUALITY FLOW RATE (cfs)	7.46
PEAK FLOW RATE (cfs)	22.64
RETURN PERIOD OF PEAK FLOW (yrs)	50
# OF CARTRIDGES REQUIRED (HF / DD)	(40/8)
CARTRIDGE LENGTH	54"



PLAN VIEW

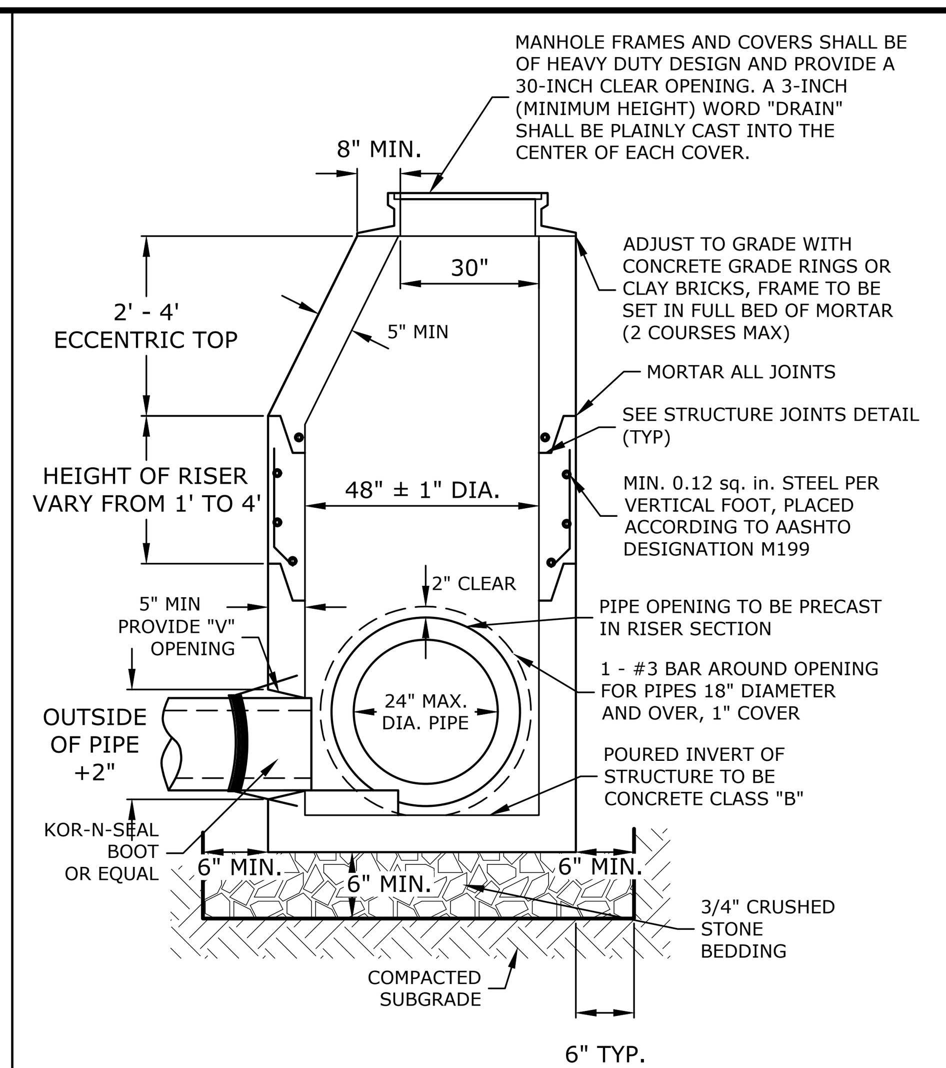


ELEVATION VIEW

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

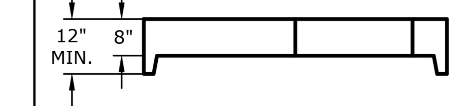
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

JELLYFISH (JFPD0816) TREATMENT UNIT
NO SCALE

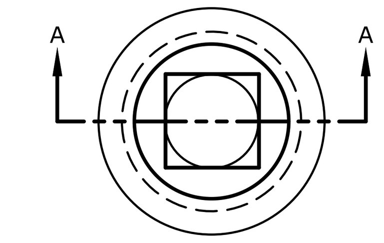


NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

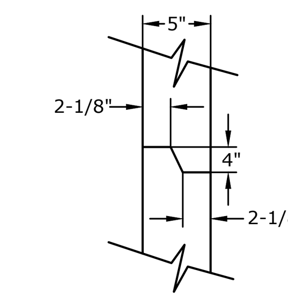
4' DIAMETER DRAIN MANHOLE
NO SCALE



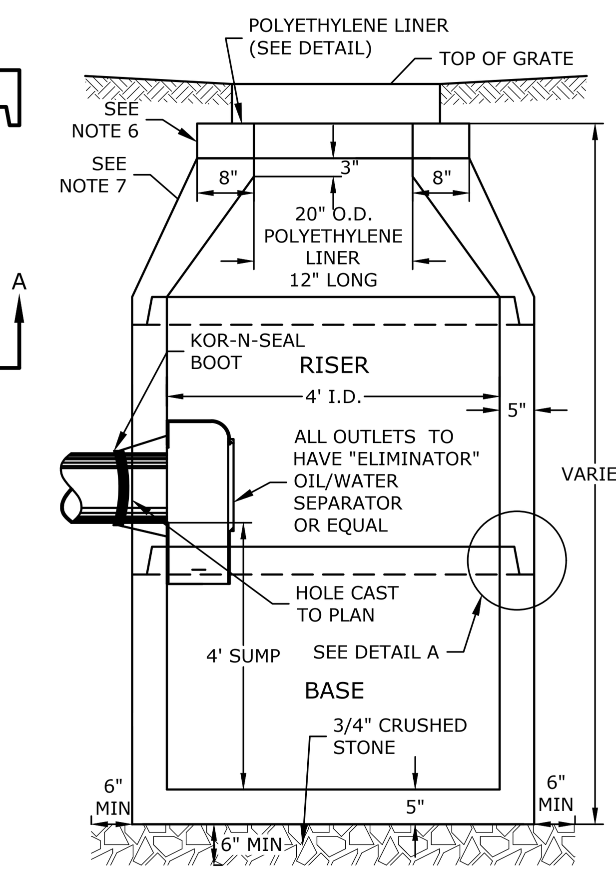
FLAT TOP SECTION



PLAN VIEW



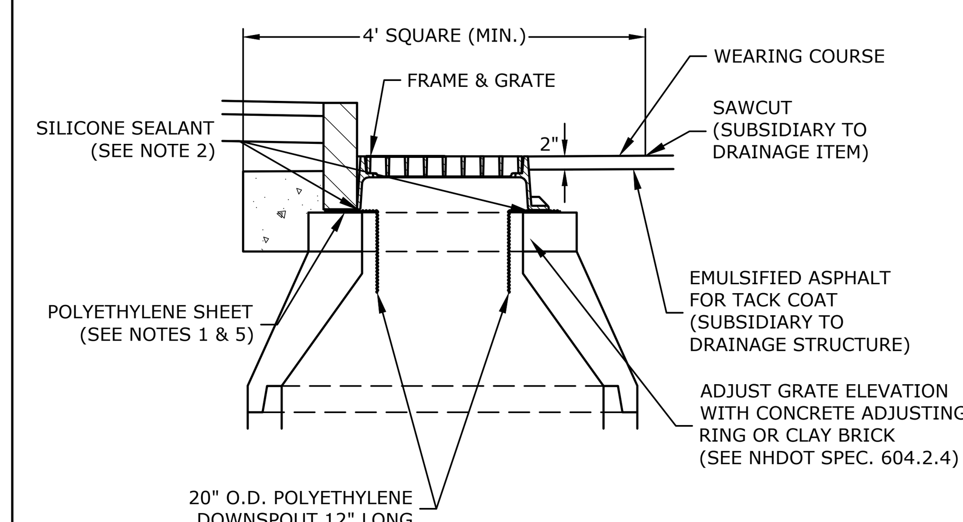
DETAIL A
(TONGUE AND GROOVE JOINT)



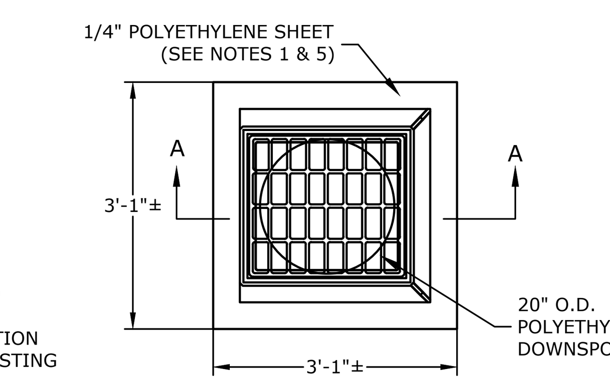
ELEVATION VIEW

NOTES:
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

4' DIAMETER CATCH BASIN
NO SCALE



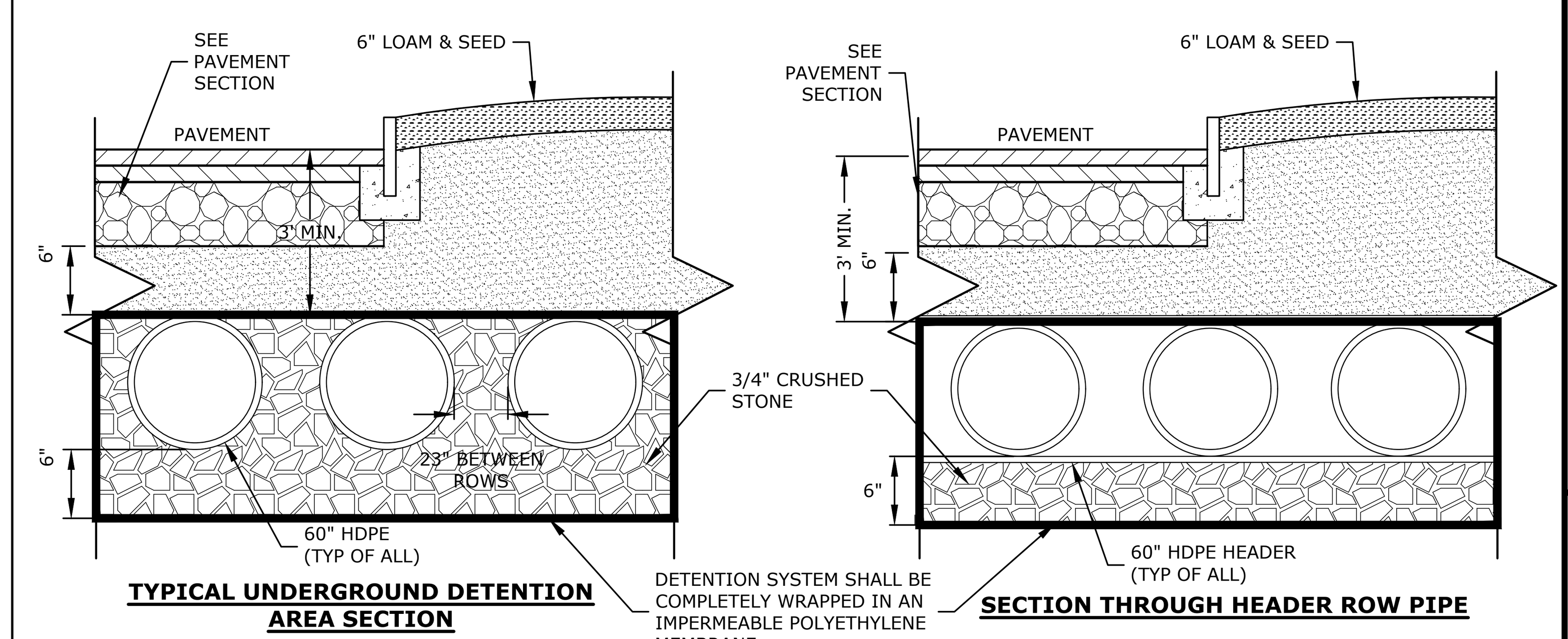
SECTION A-A



PLAN

NOTES:
1. POLYETHYLENE LINER (ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
2. PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT (SUBSIDIARY TO ITEM 604.0007) BETWEEN FRAME AND POLYETHYLENE SHEET.
3. PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF THE GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
4. USE ON DRAINAGE STRUCTURES 4' MIN. DIAMETER ONLY.
5. TRIM POLYETHYLENE SHEET A MAXIMUM OF 4" OUTSIDE THE FLANGE ON THE FRAME FOR THE CATCH BASIN BEFORE PLACING CONCRETE (EXCEPT AS SHOWN WHEN USED WITH 3-FLANGE FRAME AND CURB).
6. THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 6" FROM THE CENTER OF THE DOWNSPOUT IN ANY DIRECTION.
7. PLACED ONLY IN DRAINAGE STRUCTURES IN PAVEMENT.
8. SEE NHDOT DR-04, "DI-DB, UNDERDRAIN FLUSHING BASIN AND POLYETHYLENE LINER DETAILS", FOR ADDITIONAL INFORMATION.
9. CATCHBASINS WITHIN CITY RIGHT OF WAY SHALL HAVE A POLYETHYLENE LINER

POLYETHYLENE LINER
NO SCALE



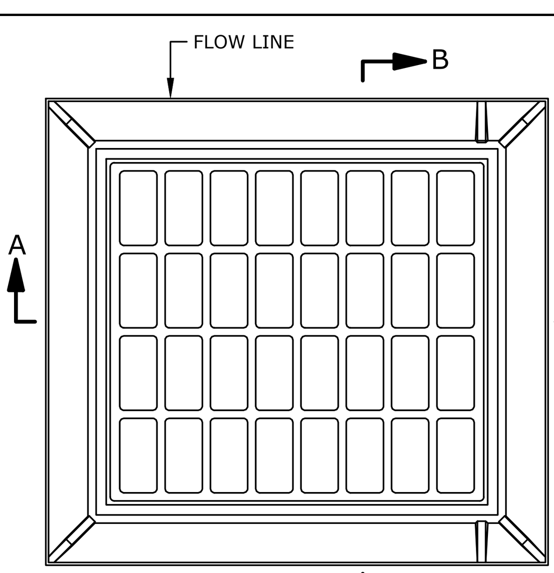
TYPICAL UNDERGROUND DETENTION AREA SECTION

SECTION THROUGH HEADER ROW PIPE

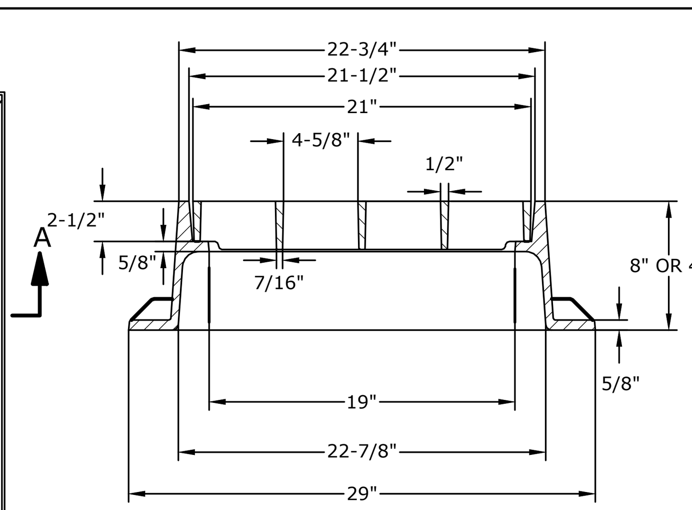
FIELD ELEVATIONS				
	TOP OF STONE ELEV	TOP OF PIPE ELEV	BOTTOM OF PIPE ELEV	BOTTOM OF STONE ELEV
PUD-01	50.50'	50.50'	45.00'	44.50'

NOTES:
1. UNDERGROUND DETENTION SYSTEM TO BE 60" HDPE PIPE DESIGNED FOR H-20 LOADING. CONTRACTOR TO SUBMIT PIPE SPECIFICATIONS AND FINAL MANUFACTURES DESIGN TO ENGINEER FOR APPROVAL.
2. MANUFACTURER TO SUBMIT PLANS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE.
3. THE DESIGN ENGINEER SHALL PROVIDE SUFFICIENT INSPECTION TO CERTIFY THAT THE SYSTEM HAS BEEN INSTALLED PER THE APPROVED DESIGN PLAN.

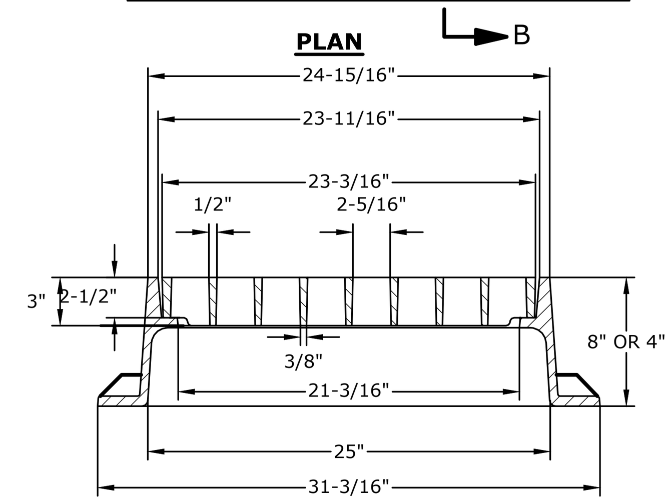
UNDERGROUND DETENTION SYSTEM
NO SCALE



PLAN



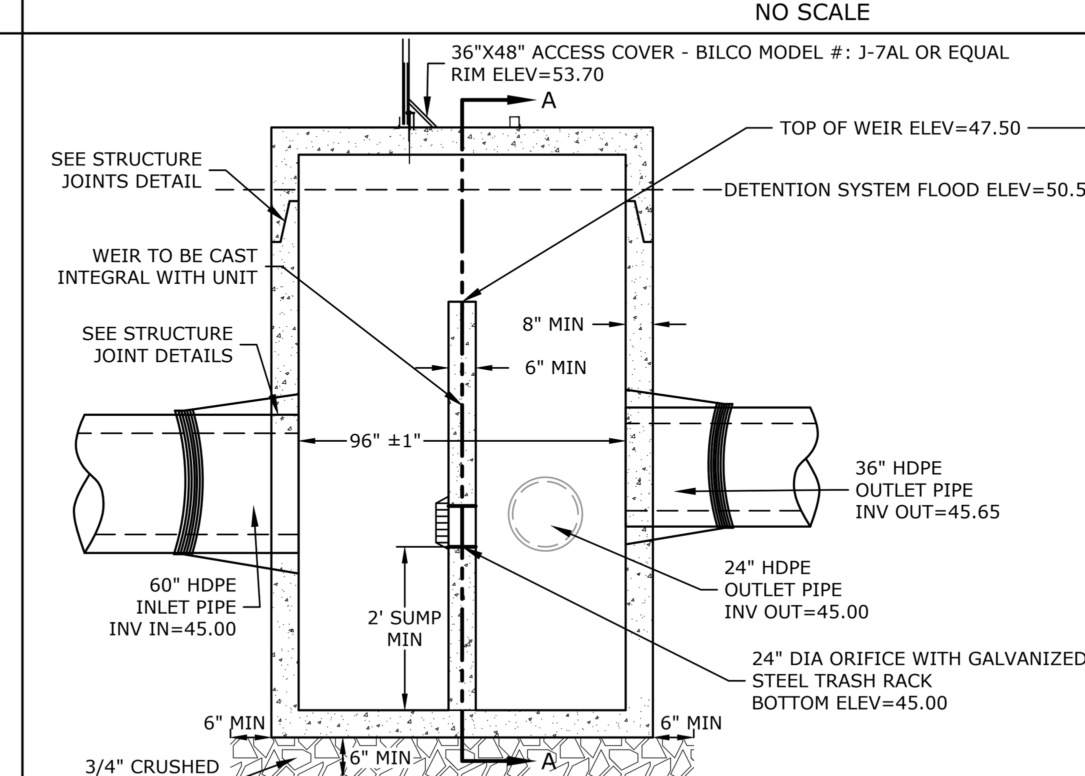
SECTION B-B



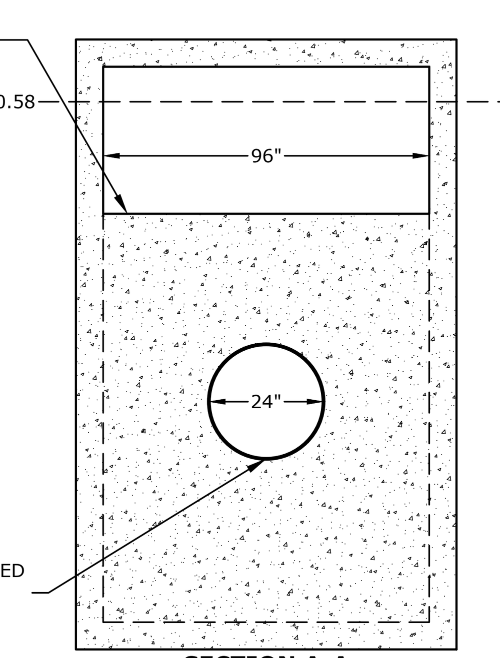
SECTION A-A

NOTES:
1. ALL DIMENSIONS ARE NOMINAL
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   2.1. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   2.2. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   2.3. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
3. FRAME AVAILABLE IN 4" OR 8" HEIGHTS
4. FREE OPEN AREA = 2.55 SQ. FT.
5. USE 3-FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.

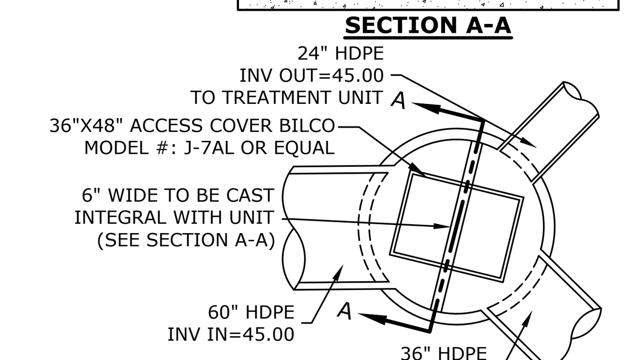
CATCH BASIN FRAME & GRATE
NO SCALE



ELEVATION VIEW



SECTION A-A

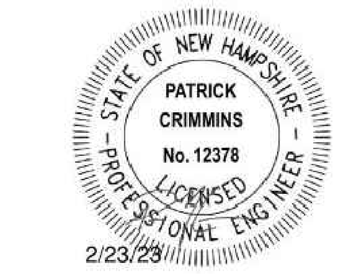


PLAN VIEW

NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE (TYPE II CEMENT).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.

PROPOSED OUTLET STRUCTURE-01
NO SCALE

Tighe&Bond



Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
D	2/23/2023	TAC Resubmission
C	2/6/2023	AoT Submission
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

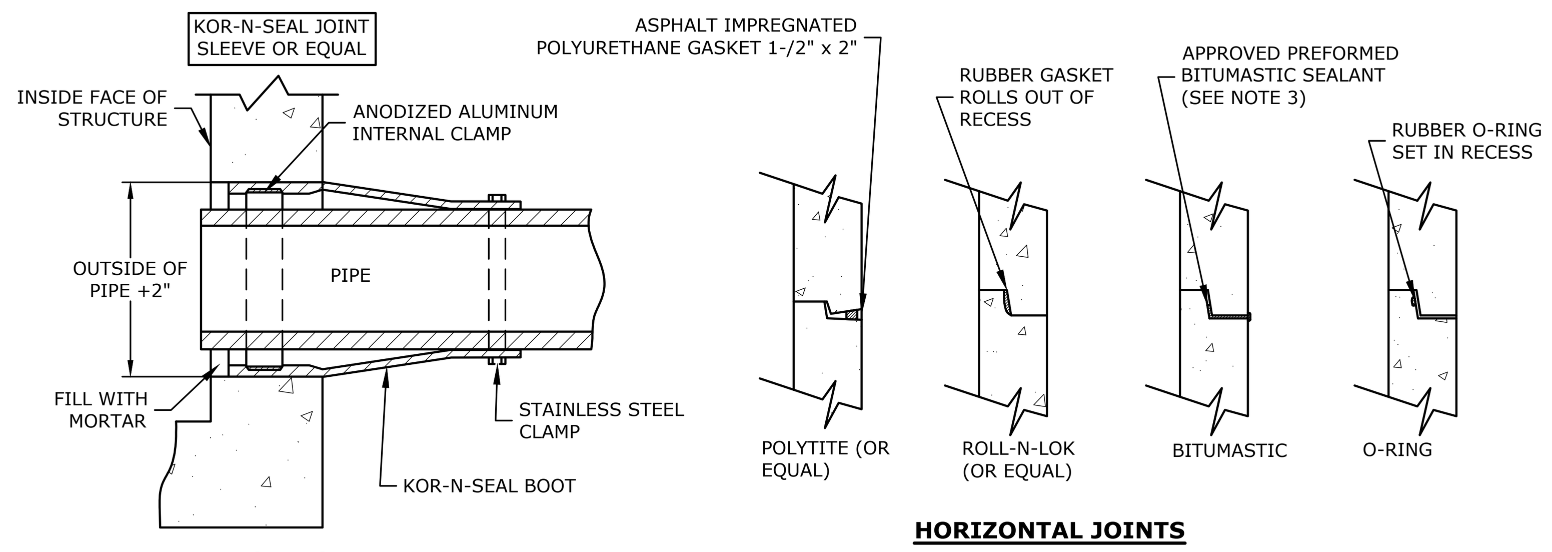
PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DETAILS.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

DETAILS SHEET

SCALE: AS SHOWN

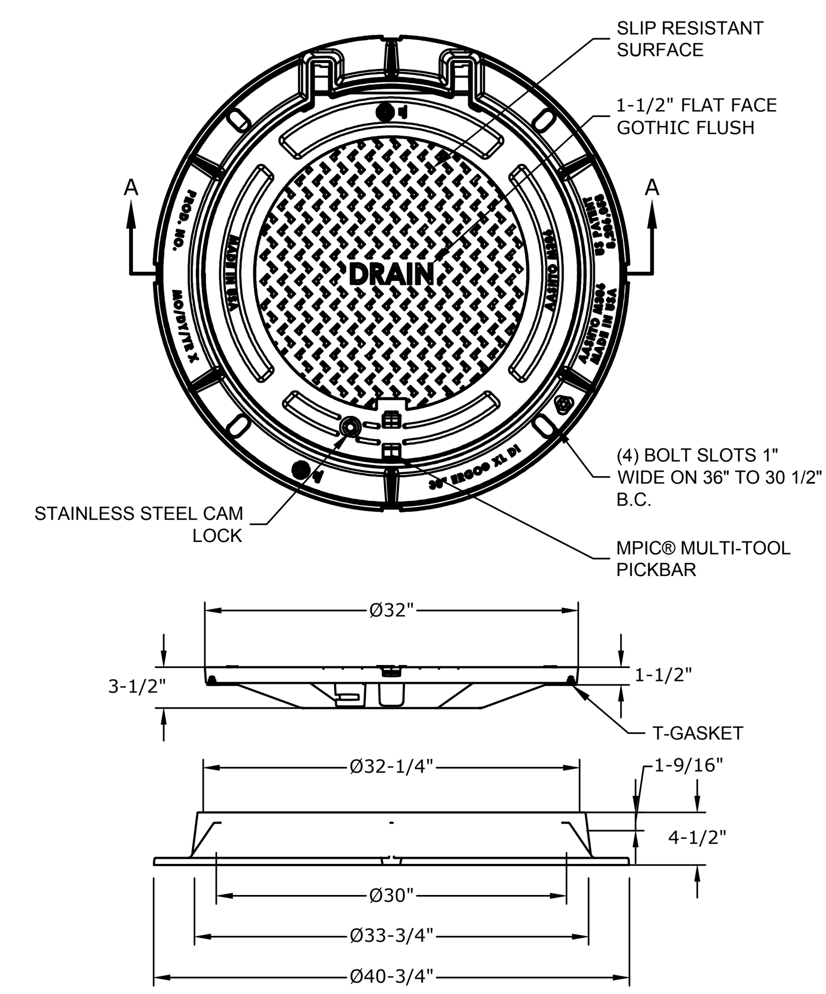
C-504

Last Save Date: February 23, 2023 9:43 AM By: CML
Plot Date: Thursday, February 23, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Details.DWG Layout Tab: C-504



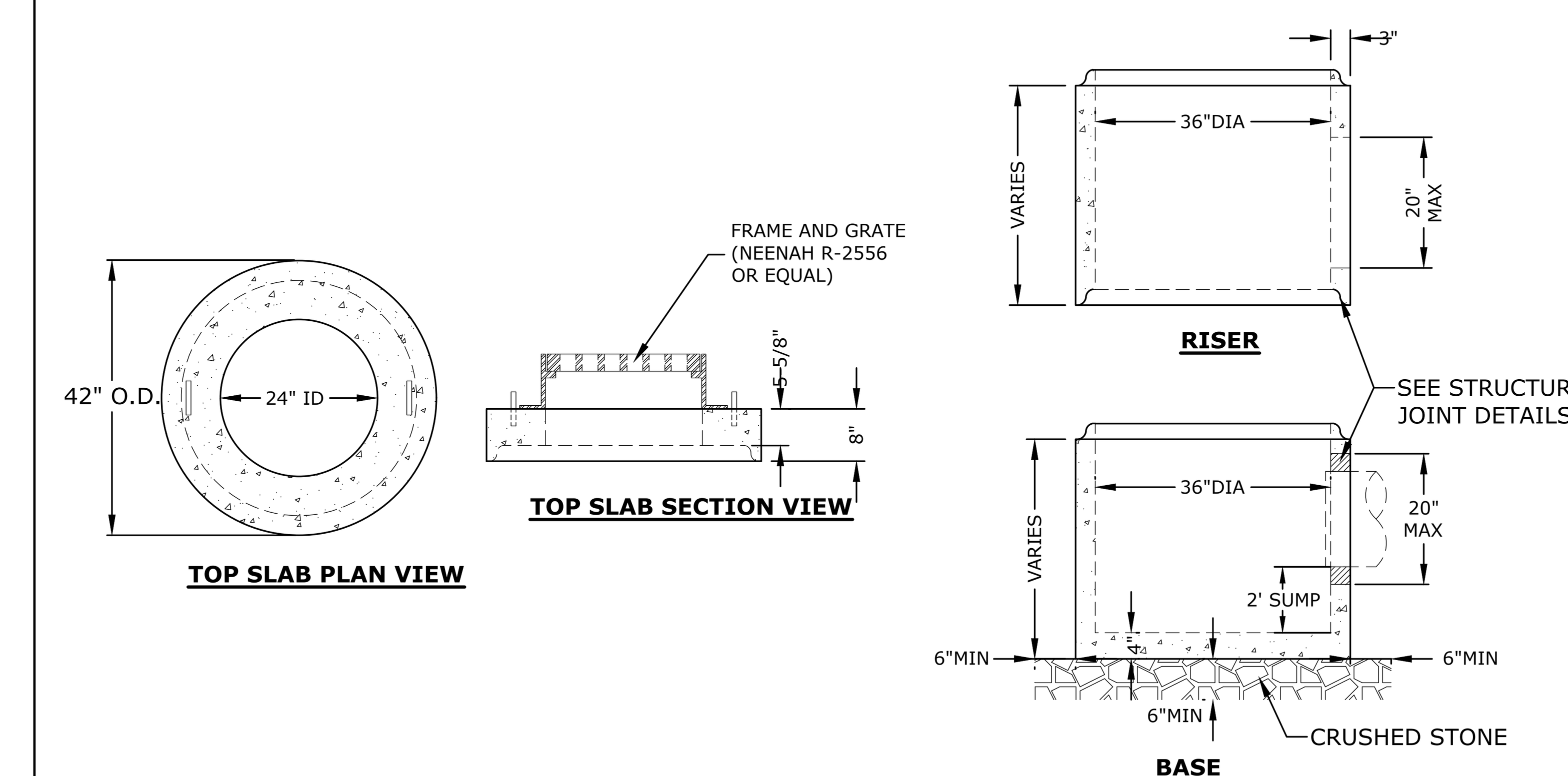
NOTES:
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

STRUCTURE JOINTS
NO SCALE



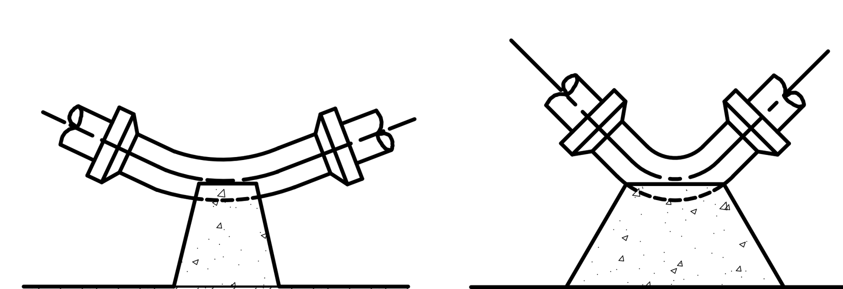
NOTES:
1. MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BY EJ CO.
2. ALL DIMENSIONS ARE NOMINAL.
3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
4. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

DRAIN MANHOLE FRAME & COVER
NO SCALE



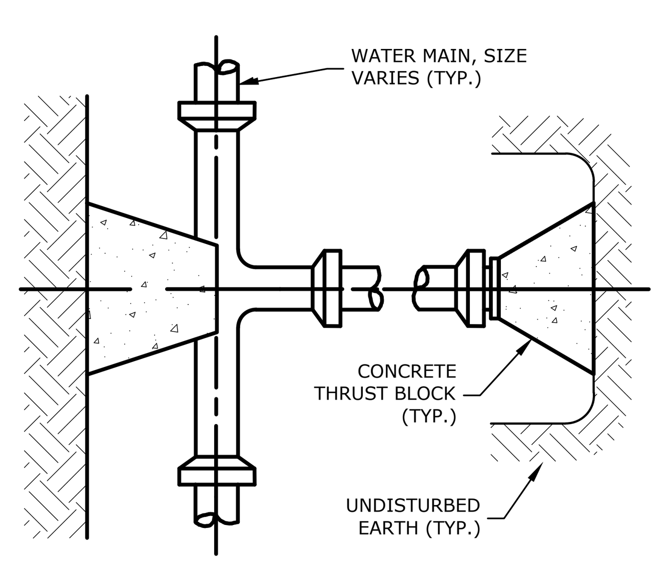
NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
3. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.
4. PRECAST CONCRETE YARD DRAINS SHALL BE PHOENIX PRECAST PRODUCTS OR EQUAL.

YARD DRAIN
NO SCALE



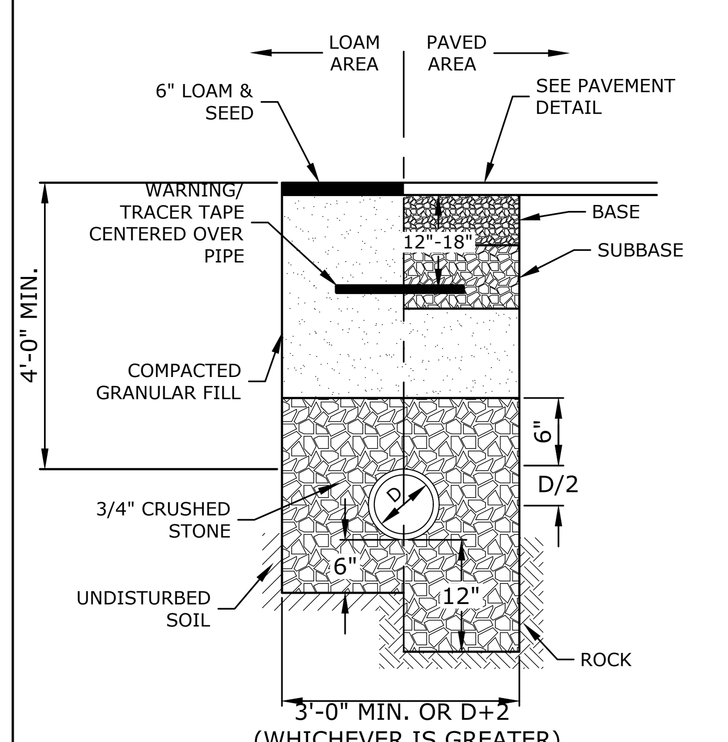
TEST PRESSURE = 200psi

SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL					
REACTION TYPE	PIPE SIZE				
	4"	6"	8"	10"	12"
A 90°	0.89	2.19	3.82	11.14	17.24
B 180°	0.65	1.55	2.78	8.38	12.00
C 45°	0.48	1.19	2.12	6.02	9.32
D 22-1/2°	0.25	0.60	1.06	3.08	4.74
E 11-1/4°	0.13	0.30	0.54	1.54	2.38



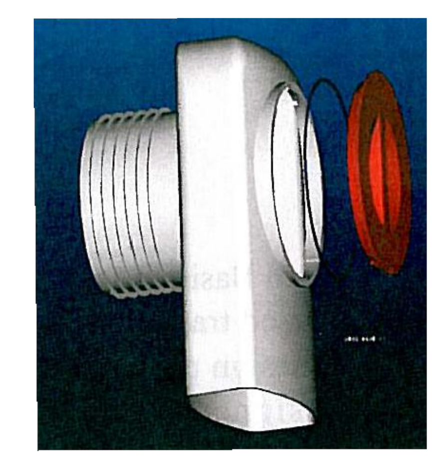
NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
5. INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.

THRUST BLOCKING
NO SCALE



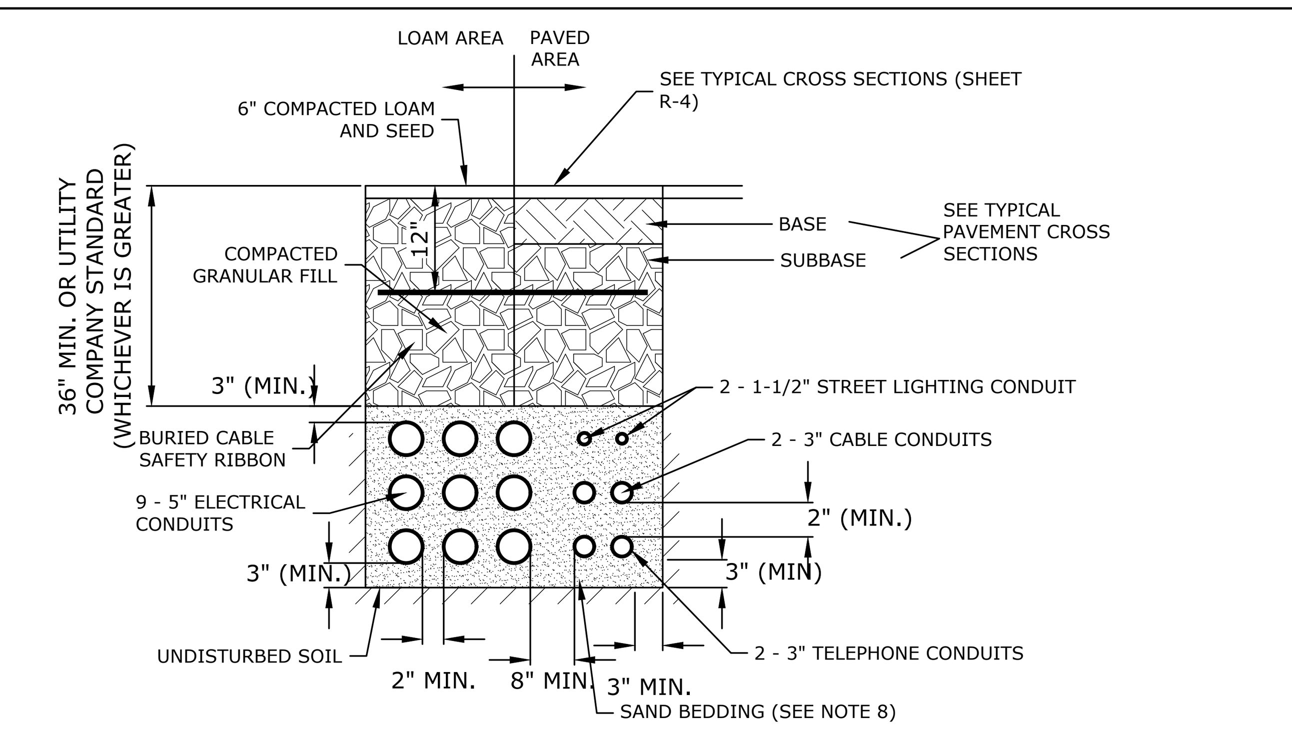
NOTE:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.

STORM DRAIN TRENCH
NO SCALE



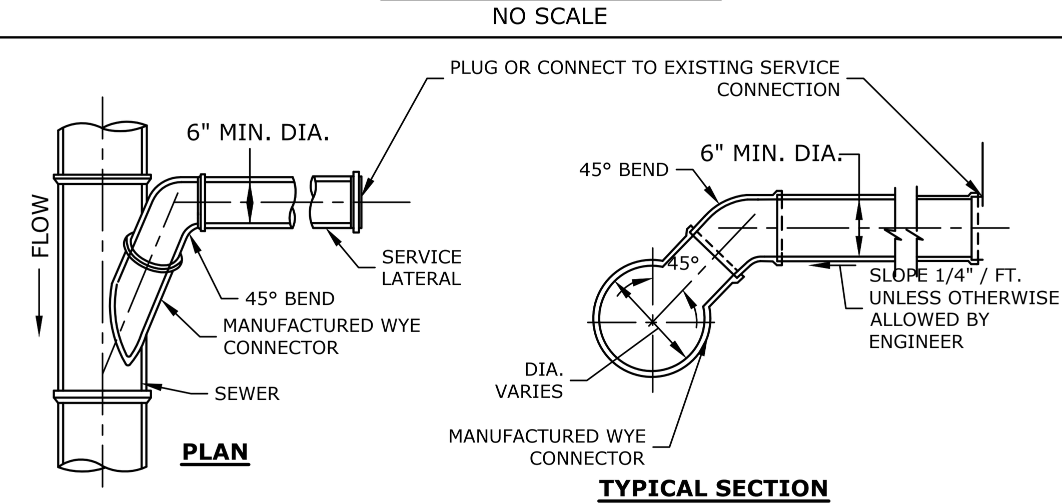
NOTES:
1. ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
2. INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
3. 1/4" HOLE SHALL BE DRILLED IN TOP OF DEBRIS TRAP

"ELIMINATOR" OIL FLOATING DEBRIS TRAP
NO SCALE

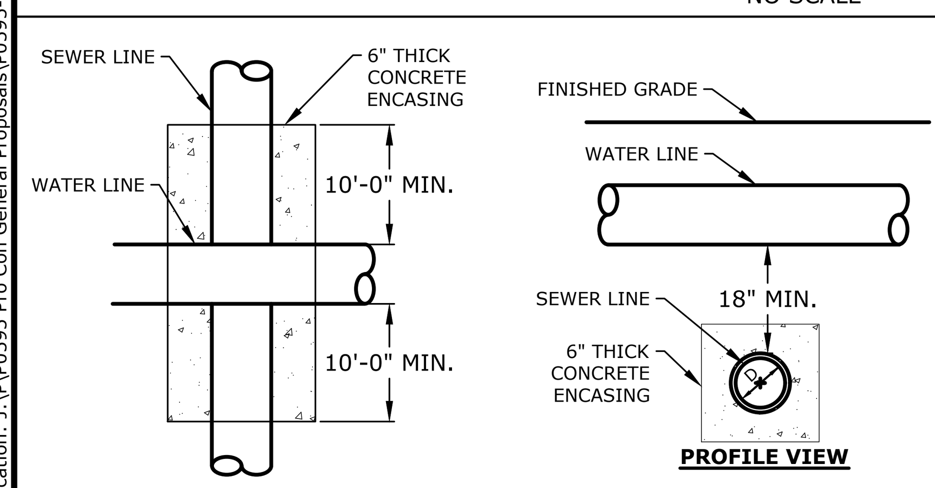


NOTES:
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL UTILITY OR AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
2. DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT SHALL NOT BE LESS THAN THOSE SHOWN.
3. NO CONDUIT RUN SHALL EXCEED 360 DEGREES IN TOTAL BENDS.
4. A SUITABLE PULLING STRING, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE UTILITY COMPANY IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
5. UTILITY COMPANY MUST BE GIVEN THE OPPORTUNITY TO INSPECT THE CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD THE UTILITY COMPANY BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
6. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND, WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE.
7. ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 36 TO 48 INCH RADIUS.
8. SAND BEDDING TO BE REPLACED WITH CONCRETE ENCASEMENT WHERE COVER IS LESS THAN 3 FEET, WHEN LOCATED BELOW PAVEMENT, OR WHERE SHOWN ON THE UTILITIES PLAN.

TYPICAL ELECTRICAL AND COMMUNICATION CONDUIT
NO SCALE

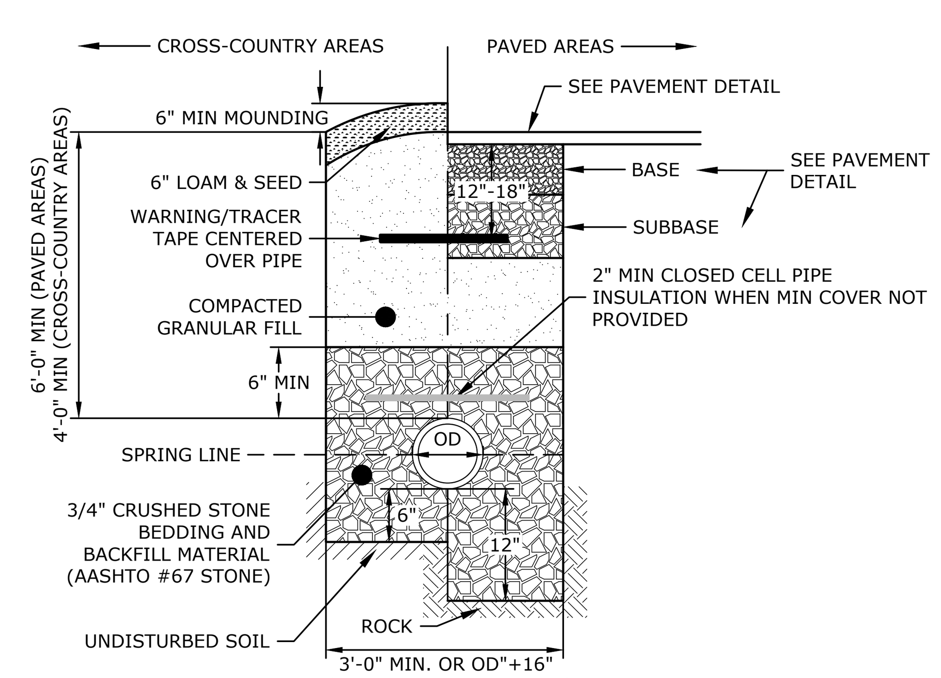


STANDARD SERVICE LATERAL CONNECTION
NO SCALE



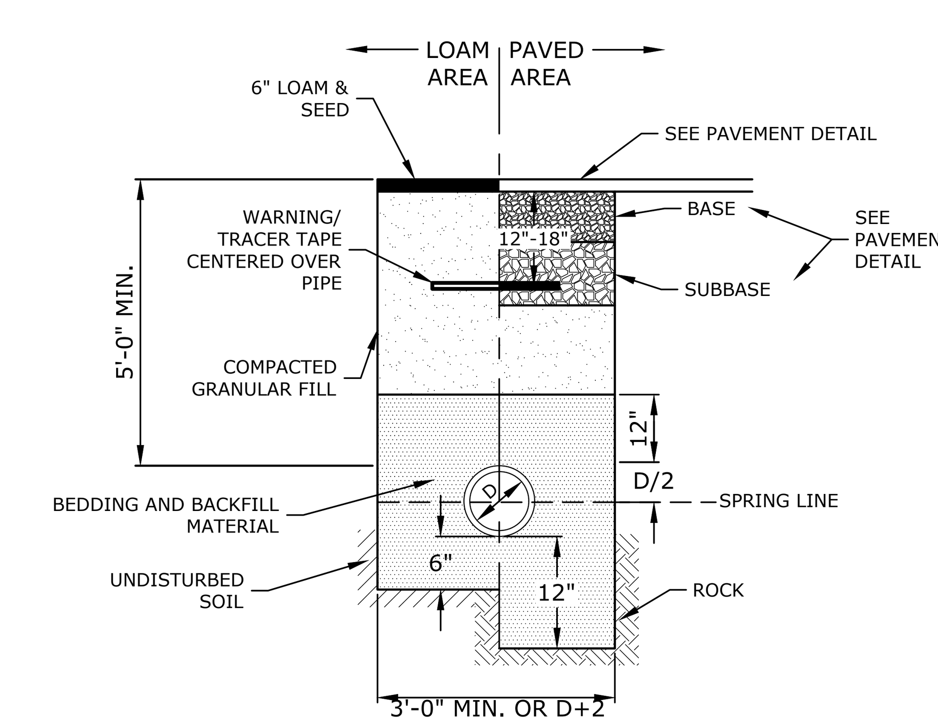
NOTES:
1. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED FROM ANY EXISTING OR PROPOSED WATER LINE.
2. AN 18" MINIMUM EDGE TO EDGE VERTICAL SEPARATION SHALL BE PROVIDED, WITH WATER ABOVE SEWER, AT ALL CROSSINGS.
3. SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.
4. WHERE AN 18" VERTICAL SEPARATION CANNOT BE PROVIDED, SEWER PIPE SHALL BE CONSTRUCTED USING A SDR 26 PVC PIPE OR ENCASED CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET ON BOTH SIDES OF THE LINE BEING CROSSED, AS SHOWN ABOVE.
5. CROSSINGS SHALL CONFORM TO THE CITY PORTSMOUTH DPW STANDARDS AND SPECIFICATIONS.

WATER SEWER CROSSING
NO SCALE



NOTES:
1. 3/4" CRUSHED STONE BEDDING AND BACKFILL MATERIAL FOR FULL WIDTH OF THE TRENCH FROM MINIMUM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO MINIMUM OF 6" OVER THE TOP OF THE PIPE.
2. SANITARY SEWER SHALL BE INSTALLED PER THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

TYPICAL SEWER TRENCH
NO SCALE



NOTES:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. WATER MAIN SHALL BE INSTALLED PER CITY OF PORTSMOUTH STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

TYPICAL WATER TRENCH
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
2/23/23

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED
PROFESSIONAL ENGINEER
2/23/23

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
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DETAILS SHEET

SCALE: AS SHOWN

C-505

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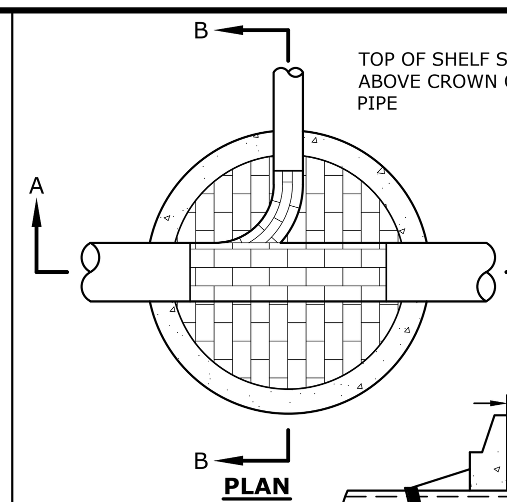
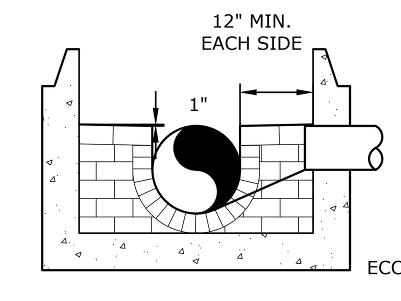
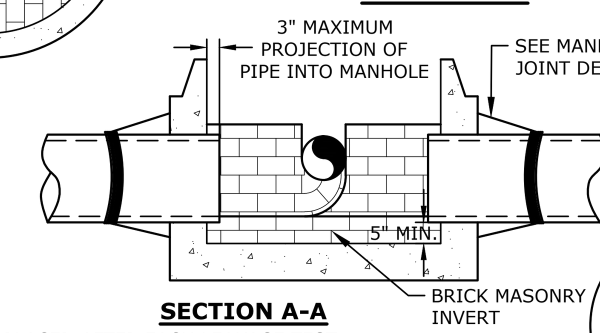
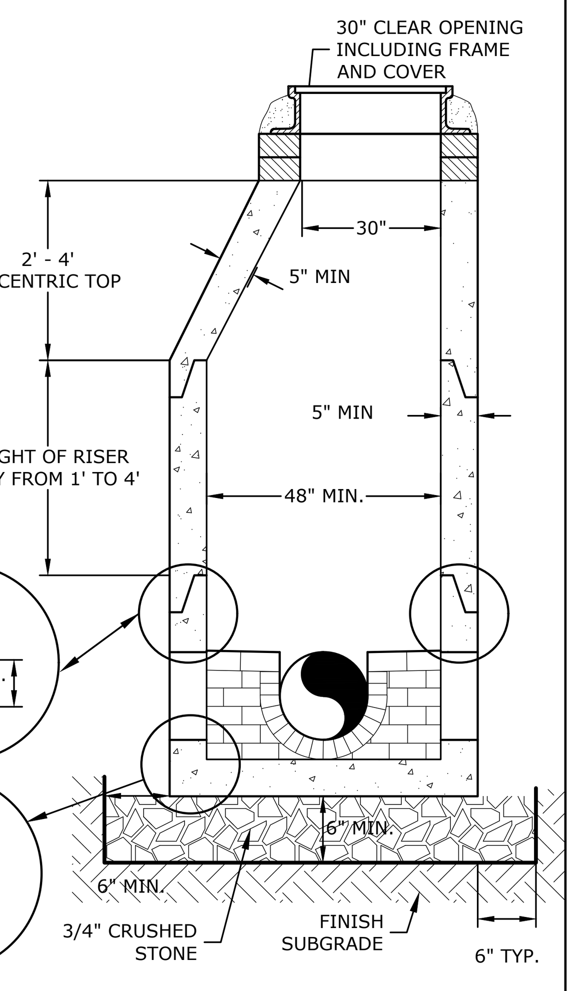
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Details.DWG Layout Tab: C-505





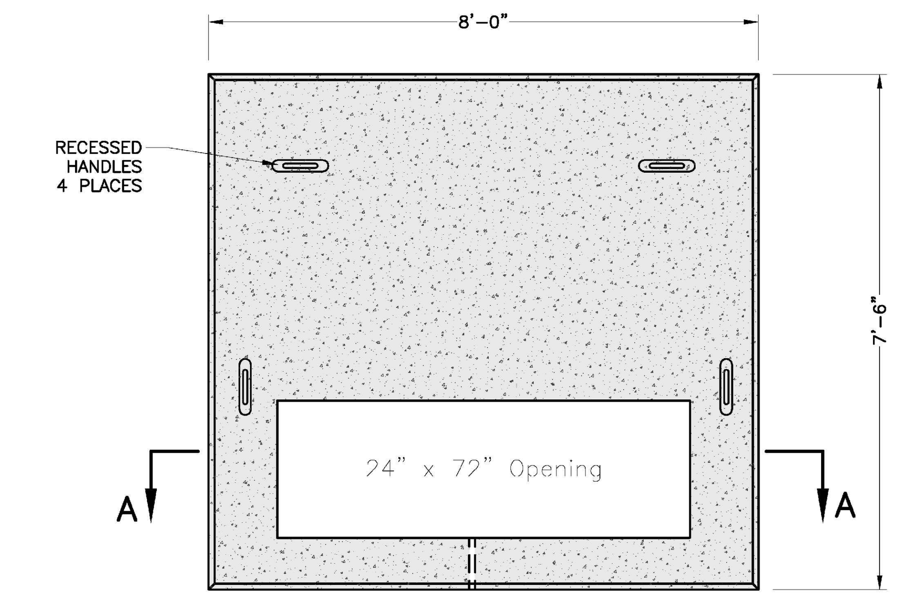


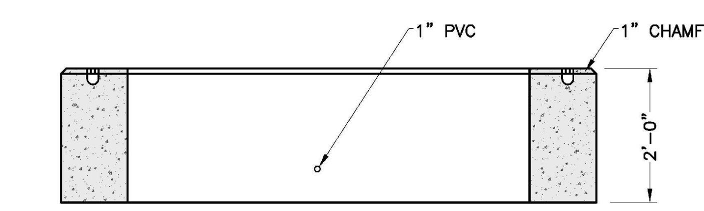


NOTES:
1. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
3. INVERT BRICKS SHALL BE LAID ON EDGE.
4. TWO (2) COATS OF BITUMINOUS WATERPROOF COATING SHALL BE APPLIED TO ENTIRE EXTERIOR OF MANHOLE.
5. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
6. HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.
7. BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM C478-06.

SEWER MANHOLE

NO SCALE

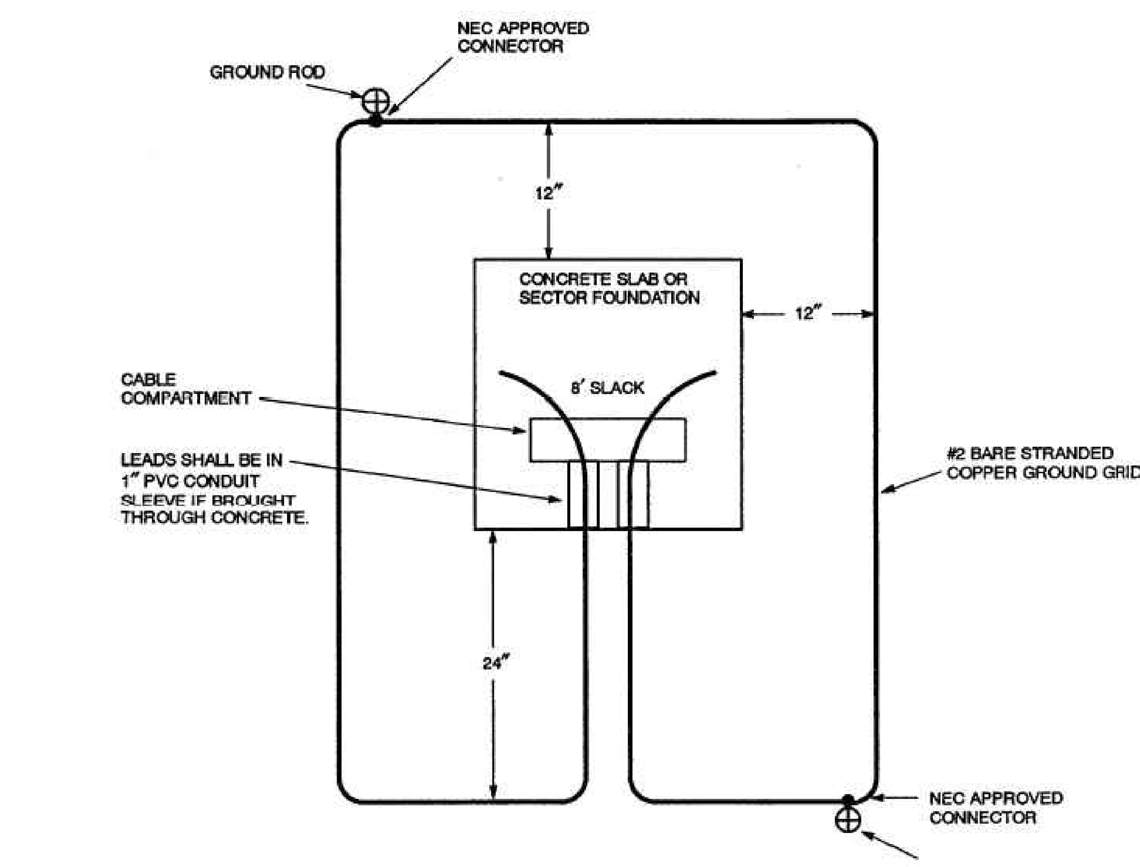




NOTES:
1. DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION
2. CONCRETE MINIMUM STRENGTH - 4,000 PSI @ 28 DAYS
3. STEEL REINFORCEMENT - ASTM A615, GRADE 60
4. PAD MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS

TYPICAL 3-PHASE TRANSFORMER PAD

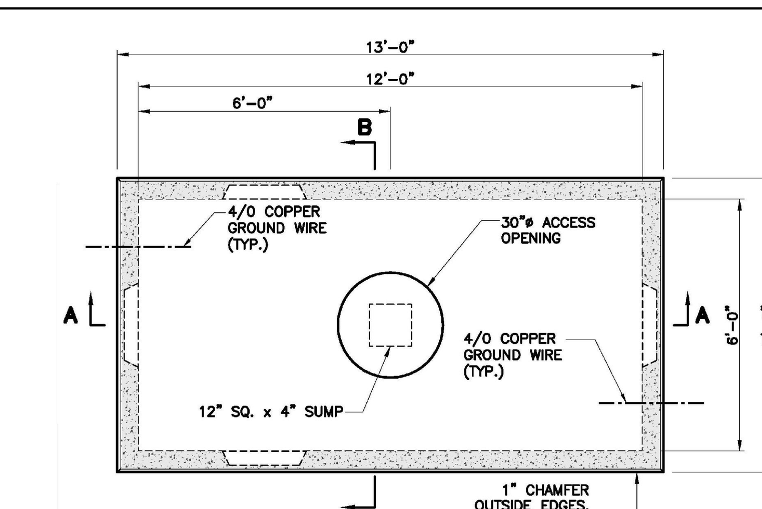
NO SCALE

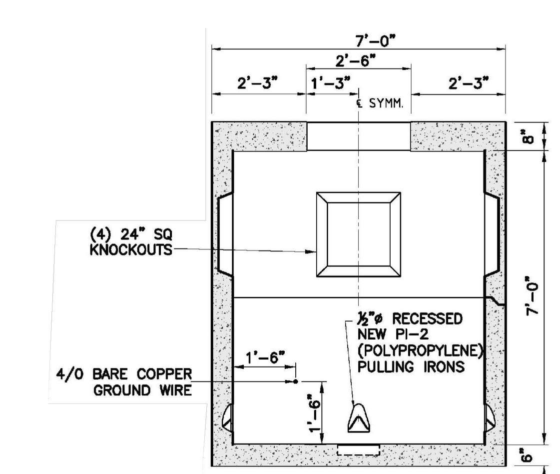


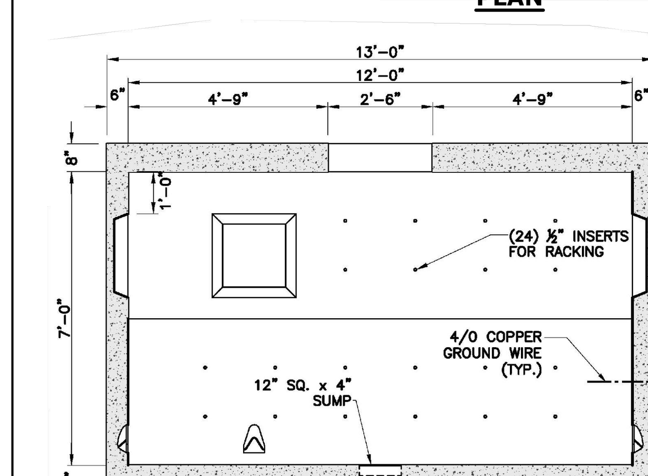
NOTES:
1. THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AND IS TO BE BURIED AT LEAST 12 INCHES BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTION TO THE TRANSFORMER. THE TWO 8-FOOT GROUND RODS MAY BE EITHER GALVANIZED STEEL OR COPPERWELD AND THEY SHALL BE CONNECTED TO THE GRID WITH NEC APPROVED CONNECTORS.

TYPICAL PAD-MOUNTED EQUIPMENT GROUNDING GRID DETAIL

NO SCALE





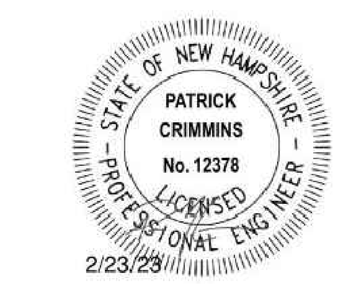


NOTE:
1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. ALL REINFORCEMENT PERASTM A615, GRADE 60, 1" MINIMUM COVER.
3. DESIGNED FOR HS20-44 LOADING.
4. EXTERIOR COATING PROVIDED.
5. DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION.

TYPICAL ELECTRIC MANHOLE

NO SCALE

Tighe&Bond



Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

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D	2/23/2023	TAC Resubmission
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DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

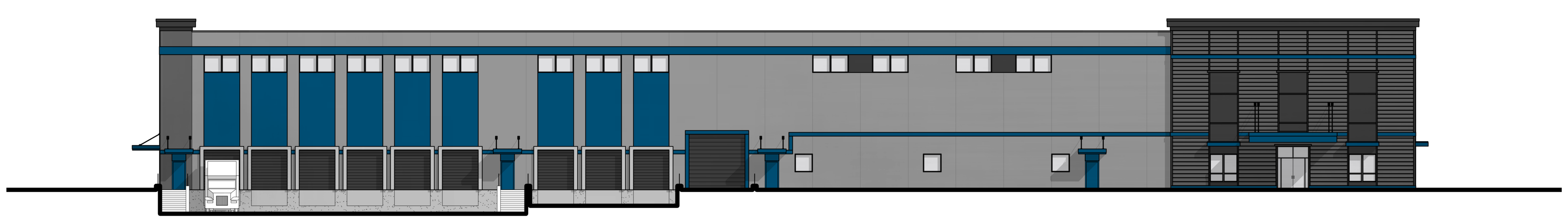
DETAILS SHEET

SCALE: AS SHOWN

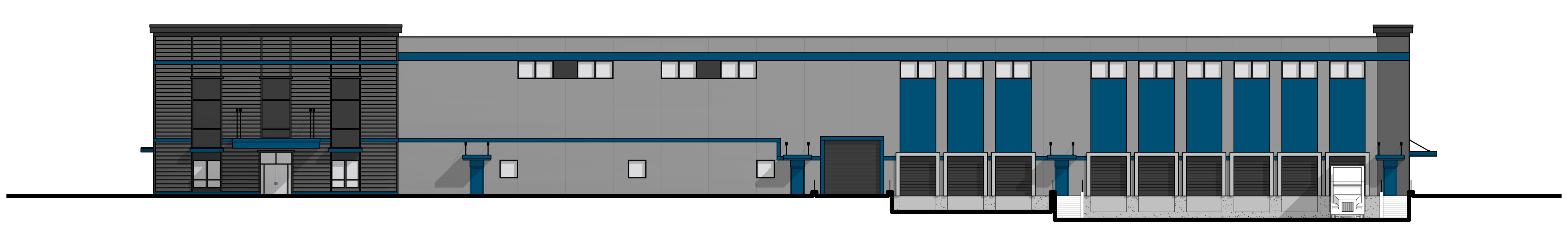
C-506

1 NEW HAMPSHIRE AVENUE ELEVATION
3/64" = 1'-0"

2 ROCHESTER AVENUE ELEVATION
3/64" = 1'-0"



3 NEWFIELDS AVENUE ELEVATION
3/64" = 1'-0"



4 STRATHAM STREET ELEVATION
3/64" = 1'-0"

PROCON
CONNECT • CREATE • CONSTRUCT

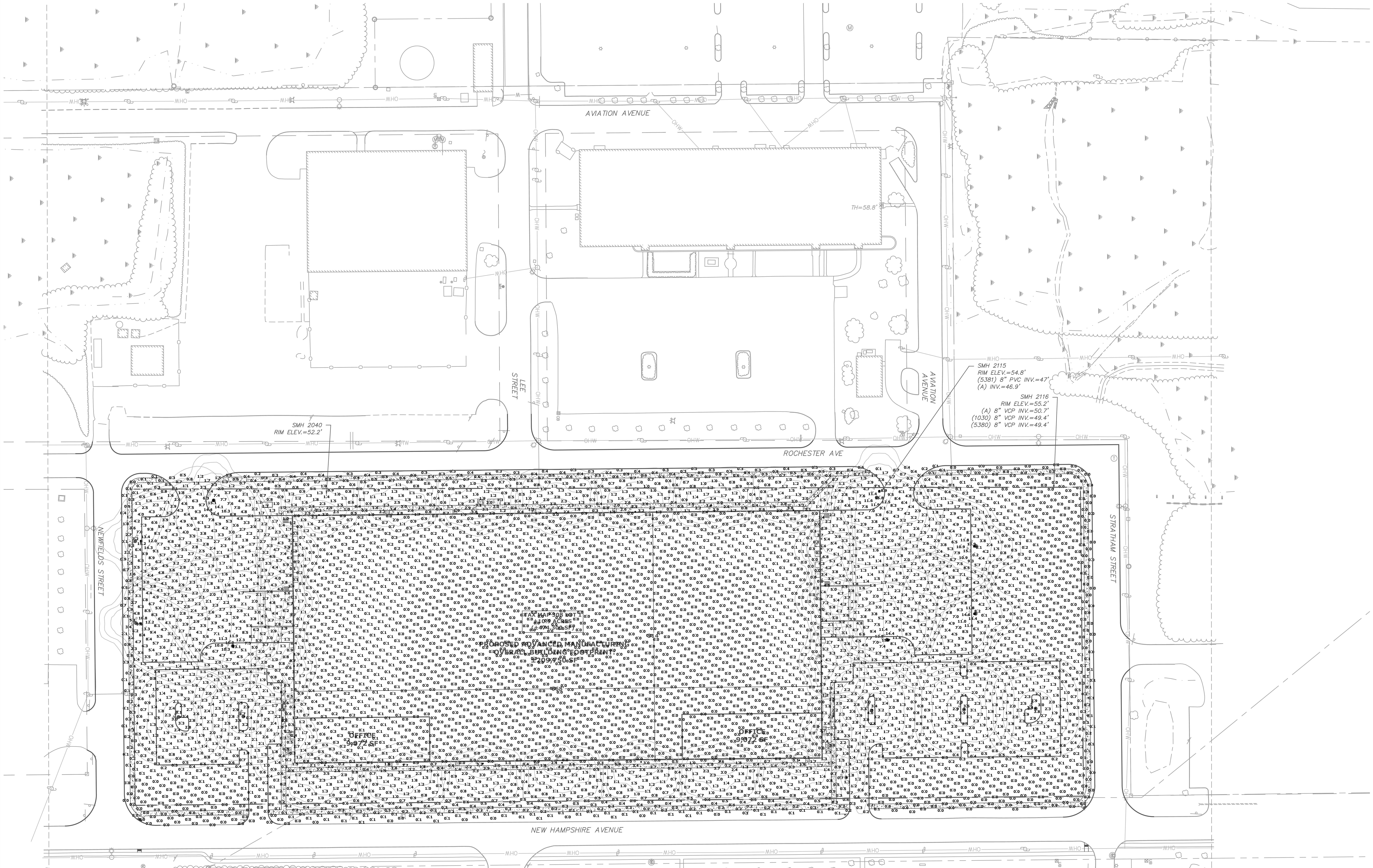
Scale: 3/64" = 1'-0"

PROPOSED EXTERIOR ELEVATIONS

Project
ADVANCED MANUFACTURING
100 NEW HAMPSHIRE AVE
PORTSMOUTH, NH

Date
12/12/2022

Dwg. No.
A1



Luminaire Schedule

Symbol	Qty	Label	Description	LLF	Luminaire Lumens	Luminaire Watts	Total Watts	[MANUFAC]	Mounting Height
	8	NLS A	NV-2-T4-128L-1-40K-UNV-KM-BRZ / SSSP18411G12BCSGLBRZ3430 (MTD 20' AFG) (ANGELED 12 DEGREES)	1.000	45399	409	3272	NLS Lighting	20
	18	NLS D	NV-1-T4-32L-7-40K-UNV-WM-BRZ / WALL MTD 20' AFG	1.000	8307	71	1278	NLS Lighing LLC	20
	4	NLS C	NV-1-T3-32L-1-40K-UNV-WM-BRZ / WALL MTD 25' AFG	1.000	13038	106	424	NLS Lighting, LLC	25
	5	NLS B1	NV-1-T5-64L-7-40K-UNV-DPS6-BRZ / SSSP18411G12BCSGLBRZ3430 (MTD 20' AFG)	1.000	16320	136	680	NLS Lighting, LLC	20
	1	NLS B	NV-1-T3-16L-35-40K-UNV-DPS6-BRZ / SSSP18411G12BCSGLBRZ3430 (MTD 20' AFG)	1.000	2286	18	18	NLS Lighting, LLC	20

Tighe&Bond

SCALE IN FEET
0 60' 120'
GRAPHIC SCALE

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
2/23/23

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED
PROFESSIONAL ENGINEER
2/23/23

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
B	2/23/2023	TAC Resubmission
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PROJECT NO:	P0595-015
DATE:	2/2/2023
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

PHOTOMETRICS PLAN

SCALE: AS SHOWN

C-701

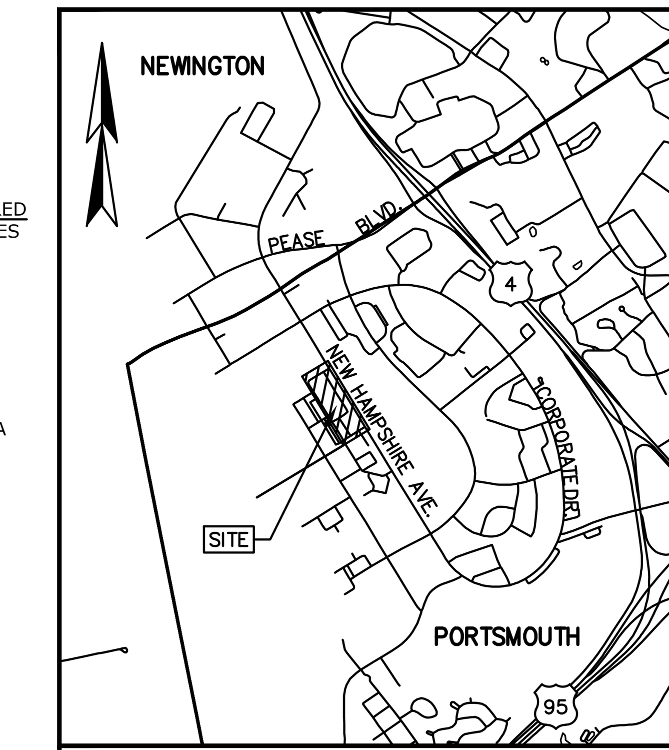
LEGEND

	LOT LINE
	PROPOSED LEASE LINE
	APPROXIMATE LOT LINE
	APPROXIMATE ABUTTERS LOT LINE
	EXISTING EASEMENT LINE
	APPROXIMATE RIGHT-OF-WAY LINE
	TREE LINE
	SHRUB LINE
	BOUND FOUND
	IRON PIPE/ROD FOUND

SITE DATA:
LOCATION: TAX MAP 308, LOT 1
80 ROCHESTER AVENUE
PORTSMOUTH, NEW HAMPSHIRE

ZONING DISTRICT: INDUSTRIAL
ALLOWED USE: INDUSTRIAL / WAREHOUSE

DIMENSIONAL REQUIREMENTS:	REQUIRED
MINIMUM LOT AREA:	10 ACRES
MINIMUM STREET FRONTAGE:	200 FT
MINIMUM SETBACKS:	
• FRONT:	70 FT
• SIDE:	50 FT
• REAR:	50 FT
MAXIMUM BUILDING HEIGHT:	PER FAA
MINIMUM OPEN SPACE:	25%



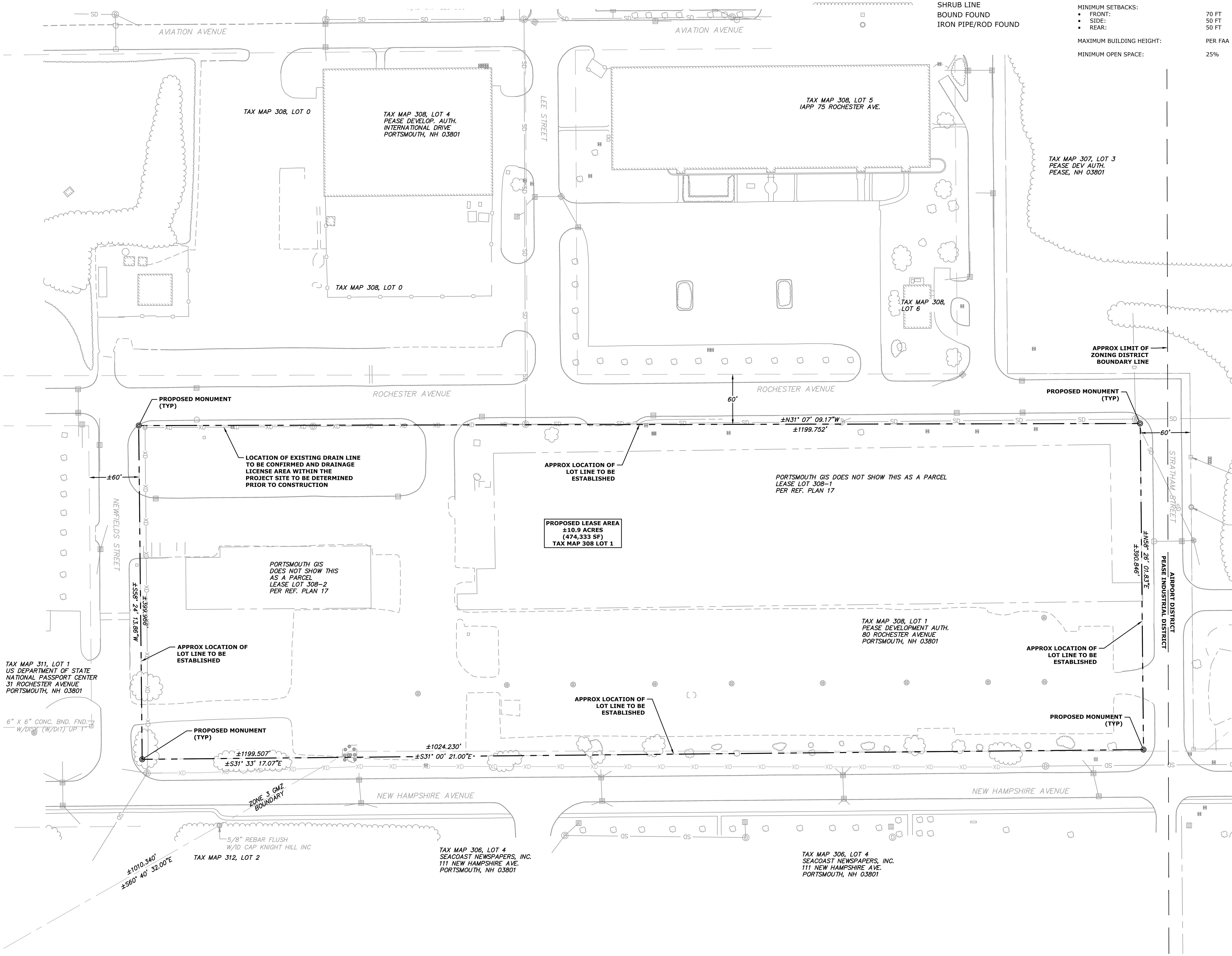
LOCATION MAP (n.t.s.)

NOTES:

1. SUBDIVISION LINES SHOWN HEREIN ARE FOR PERMITTING PURPOSES ONLY. FINAL SUBDIVISION PLAN SHALL BE PREPARED BY THE PROJECT SURVEYOR AND RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS PRIOR TO ISSUING BUILDING PERMITS. THE TITLE OF THE SUBDIVISION PLAN TO BE RECORDED WILL BE:

   SUBDIVISION PLAN
   FOR
   100 NEW HAMPSHIRE AVENUE
   PORTSMOUTH, NEW HAMPSHIRE
   LAND OF
   PEASE DEVELOPMENT AUTHORITY
   LEASED TO
   AVIATION AVENUE GROUP, LLC
   (TAX MAP 308 LOT 1
   NEW HAMPSHIRE AVENUE
   PORTSMOUTH, NEW HAMPSHIRE)

2. THE INTENT OF THIS PLAN IS TO SUBDIVIDE A 10.9 ACRE LOT FROM THE EXISTING PEASE DEVELOPMENT AUTHORITY LOT. THE SUBDIVIDED LOT WILL BE LEASED TO: AVIATION AVENUE GROUP, LLC, THE OWNER OF RECORD IS: PEASE DEVELOPMENT AUTHORITY, THE APPLICANT IS: AVIATION AVENUE GROUP, LLC.



SCALE IN FEET
0 60' 120'
GRAPHIC SCALE

Tighe&Bond

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
D	2/23/2023	TAC Resubmission
C	2/6/2023	AoT Submission
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

PROPOSED SUBDIVISION PLAN

SCALE: AS SHOWN

1 OF 1

Last Save Date: February 20, 2023 4:54 PM By: CML
Plot Date: Monday, February 20, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: Subdivision

25-0595-015
February 17, 2023

Michael R. Mates, PE
Pease Development Authority
55 International Drive
Portsmouth, NH 03801

Re: **Response to Traffic Engineering Peer Review Comments**
Advanced Manufacturing Facility
100 New Hampshire Avenue, Portsmouth, NH

Dear Mr. Mates:

Tighe & Bond has prepared this letter in response to peer review comments on the Traffic Impact Assessment (TIA) for the subject project provided by VHB in a letter dated February 1, 2023. For ease of review, VHB comments are repeated herein in *italics*, followed by our response in **bold** text.

Peer Review Comments

Comment 1: To determine whether a pandemic adjustment should be made to 2022 traffic counts, NHDOT guidance is to review historical traffic counts from 2019 pre-pandemic conditions and compare with current traffic volumes. The traffic volume comparison provided in Section 2.3 Traffic Volumes and as reflected in Table 1 of the traffic study compares NHDOT traffic volumes from 2021 with the February 2022 traffic counts seasonally adjusted. The applicant should provide the following:

- *The Thursday, February 22, 2022, ATR counts presented in the Appendix of the traffic study (peak hours highlighted on those sheets by Tighe & Bond, Inc.) show 14,555 vehicles per day were observed along Pease Boulevard (7,333 vehicles per day eastbound and 7,222 vehicles per day westbound). Table 1 of the traffic study, however, shows that the annual average daily traffic calculated from these counts was reduced to 12,894 vehicles per day. Therefore, the applicant should either clarify the rationalization for this reduction or reevaluate the 2022 traffic volumes used in determining the pandemic adjustment factor.*

- *NHDOT guidance is to compare current traffic counts with 2019 pre-pandemic traffic volumes.* ***Since the traffic study shows a comparison of 2022 and 2021 traffic volumes, the applicant should revisit the pandemic adjustment evaluation by comparing the 2019 and 2022 AADTs (updated as required).***

- ***Should the February traffic counts need to be modified to represent pre-pandemic peak month traffic volumes, then the applicant would need to update the traffic volumes and intersection analyses used throughout the traffic study.***

Response: **The February 2022 average daily traffic volume on Pease Boulevard was updated to reflect the corrected volumes, which were then seasonally adjusted in accordance with NHDOT guidance.**

NHDOT preference on comparing current traffic volumes with 2019 pre-pandemic traffic volumes was confirmed, with a resultant 53% increase in weekday morning peak period volumes and a 45% adjustment to weekday afternoon peak period volumes. Volume summaries and resultant analysis were updated, and a revised Traffic Impact Assessment (TIA) is included with these responses.

We note that while the application of these adjustment factors aligns with NHDOT guidance on review and adjustment of post-pandemic traffic volumes, it should be understood that application of adjustment factors based on ATR data from Pease Boulevard across all turning movements within the study area may artificially inflate turning movements and overstate calculated operational delay and resultant capacity analysis results.

Comment 2: *Due to the location of the proposed site driveways with respect to the adjacent roadway system, there may be concerns related to trucks maneuvering at the "sharp curvature" (page-4-1 of the traffic study) of the Rochester Avenue and Stratham Street junction. Based on a preliminary review of the December 19, 2022 Truck Turning Exhibits submitted for the proposed development, trucks do not appear to be expected to travel through this connection.* ***Therefore, the applicant should commit to not allowing trucks through this junction or provide truck turning plans to demonstrate that trucks would safely travel through this connection.***

Response: **Trucks are not expected to travel through this connection, with all truck traffic distributed to the south as shown in Figure 6 of the TIA.**

Comment 3: *The Pease Boulevard and International Drive signalized intersection is shown to operate with capacity deficiencies (volume-to-capacity [v/c] ratios >1.00) during 2035 No-Build weekday PM peak hour traffic volume conditions (i.e., without the proposed development).* ***Therefore, PDA and local officials should understand the impact that the proposed development would have on intersection operations at this location moving forward.***

Response: **The updated analyses presented in the revised TIA indicate no change between No-Build and Build analyses at this intersection.**

Comment 4: *The Pease Boulevard and US Route 4 southbound ramps signalized intersection is shown to operate with capacity deficiencies during 2035 weekday AM peak hour traffic volume conditions with and without the proposed development. Similarly, the Pease Boulevard and US Route 4 northbound ramps signalized intersection is shown to operate with capacity deficiencies during 2035 No-Build weekday AM peak hour traffic volume conditions.* ***Therefore, local and***

NHDOT officials should understand the impact that the proposed development would have on intersection operations moving forward.

Response: The updated analyses presented in the revised TIA indicate no change between No-Build and Build analyses at this intersection.

Comment 5: The Greenland Road and I-95 southbound ramps signalized intersection is shown to operate with capacity deficiencies during 2035 No-Build weekday AM and PM peak hour traffic volume conditions. In addition, the Greenland Road and I-95 northbound ramps signalized intersection is shown to operate with capacity deficiencies during 2035 No-Build weekday AM peak hour traffic volume conditions. ***Therefore, local and NHDOT officials should understand the impact that the proposed development would have on intersection operations at this location moving forward.***

Response: The updated analyses presented in the revised TIA indicate no change between No-Build and Build analyses at this intersection.

Comment 6: The proposed development is shown to have an impact at the Pease Boulevard, Arboretum Drive, and New Hampshire Avenue all-way stop control intersection during 2025 and 2035 Build weekday PM peak hour traffic volumes. The addition of 67 site trips through this intersection results in increases in delay on New Hampshire Avenue northbound approach in the range of 14.4 to 28.0 seconds. In addition, the site trips would result in the New Hampshire Avenue northbound approach operating over capacity during 2035 Build weekday PM peak hour traffic volumes. This intersection is currently being designed for the addition of a right-turn lane on the New Hampshire Avenue northbound approach. This project is on the State's Ten Year Plan for 2025 with the improvements envisioned to be in place by 2035. ***Therefore, the applicant should coordinate with PDA officials on these improvements and update the intersection analyses accordingly to determine the development's traffic impacts with this improvement in place.***

Response: Planned improvements at the intersection of Pease Boulevard at New Hampshire Avenue/ Arboretum Drive as part of NHDOT Project No. 42879 include the construction of a dedicated right-turn lane on the northbound approach. Because the improvements are expected to begin construction in 2025 and be in place by 2035, the proposed northbound right-turn lane was included in the 2035 No Build and 2035 Build Conditions analyses.

Comment 7: The proposed development is shown to have an impact at the New Hampshire Avenue, Corporate Drive, International Drive, and Durham Street unsignalized intersection during 2025 and 2035 Build weekday PM peak hour traffic volumes. The International Drive westbound approach is modeled to operate with long delays (LOS F) during 2022 Existing weekday PM peak hour traffic volumes and, with the addition of 86 site trips through the intersection (82 passenger *vehicles and 6 trucks), this approach would operate over capacity during 2025 Build weekday PM peak hour conditions.*

PDA has a Master Plan and Implementation Plan for improvements that includes the construction of a roundabout or the installation of a traffic signal with additional turn lanes at this intersection. ***Therefore, PDA and local officials should understand the impact that the proposed development would have on intersection operations moving forward.***

Response: The updated analyses presented in the revised TIA indicate no change between No-Build and Build analyses at this intersection. PDA and local officials should understand Existing and Future deficiencies at this location outside of the project impact, which support efforts included in their Master Plan.

Comment 8: The Corporate Drive and Grafton Road unsignalized intersection is shown to operate with capacity deficiencies during 2035 weekday AM and PM peak hour traffic volume conditions with and without the proposed development. Similar to Comment 7, PDA has a Master Plan and Implementation Plan for improvements that includes installing a traffic signal at this intersection.

Therefore, PDA and local officials should understand the impact that the proposed development would have on intersection operations at this location moving forward.

Response: The updated analyses presented in the revised TIA indicate no change between No-Build and Build analyses at this intersection. PDA and local officials should understand Existing and Future deficiencies at this location outside of the project impact, which support efforts included in their Master Plan.

Comment 9: The proposed development is shown to have an impact at the Grafton Road and Aviation Avenue unsignalized intersection during 2035 Build weekday PM peak hour traffic volumes. The addition of 86 site trips through the intersection (82 passenger vehicles and 6 trucks) results in increases in delay on Aviation Avenue eastbound approach by 12.9 seconds and drop service levels from LOS E to LOS F.

Similar to previous comments, PDA has a Master Plan and Implementation Plan for improvements that includes the construction of a left-turn lane on the Grafton Road northbound approach (interim improvement) and separate left- and right-turn lanes on the Aviation Avenue approach (full improvements). ***Therefore, PDA and local officials should understand the impact that the proposed development would have on intersection operations moving forward.***

Response: The updated analyses presented in the revised TIA indicate no change between No-Build and Build analyses at this intersection. PDA and local

officials should understand Future deficiencies at this location outside of the project impact, which support efforts included in their Master Plan.

Comment 10: There are long delays modeled along the Park & Ride lot driveway at the unsignalized intersection with Grafton Road and Pease Golf Course driveway during 2022 Existing weekday AM and PM peak hour traffic volumes. These delays will be exacerbated with the addition of future traffic growth as this approach would operate over capacity during 2035 No-Build and Build conditions.

Improvements to this intersection have been identified within PDA's Master Plan and Implementation Plan. Interim improvement for consideration include widening Grafton Road to provide a center-turn lane (two-way left-turn-lane) and full improvements considered include placing the intersection under traffic signal control with additional turn lanes. ***Therefore, PDA and local officials should understand the impact that the proposed development would have on intersection operations at this location moving forward.***

Response: The updated analyses presented in the revised TIA indicate no change between No-Build and Build analyses at this intersection. PDA and local officials should understand Existing and Future deficiencies at this location outside of the project impact, which support efforts included in their Master Plan.

Comment 11: The proposed development is shown to have an impact at the Grafton Road and I-95 southbound off-ramp unsignalized intersection during 2035 Build weekday AM peak hour traffic volumes. The I-95 southbound off-ramp is shown to operate with long delays (LOS F) with 2035 No-Build weekday AM peak hour traffic volumes that would then operate over capacity with the addition of 82 site trips through the intersection (76 passenger vehicles and 6 trucks). ***Therefore, local and NHDOT officials should understand the impact that the proposed development would have on intersection operations at this location moving forward.***

Response: The updated analyses presented in the revised TIA indicate no change between No-Build and Build analyses at this intersection. Local and NHDOT officials should understand Existing and Future deficiencies at this location outside of the project impact.

City of Portsmouth Comments

In addition to the peer review comments outlined above, the following comment from the City of Portsmouth was received via email on February 2, 2023:

City Comment: 3rd party traffic review did not address concerns with proposed crosswalks across New Hampshire Ave. Based on projected traffic volumes and width of crossings, additional safety measures could be warranted if speeds are *in excess of 35 MPH. Crosswalks are not usually* warranted if less than 20 pedestrians per hour during peak pedestrian hour.

Response: **A review of ATR data collected in February 2022 indicates 85th percentile speeds of up to 40 mph in the northbound direction and 39 mph in the southbound direction and average daily traffic volumes of approximately 5,200 vehicles per day on New Hampshire Avenue, approximately 500 feet south of Pease Boulevard. Based on guidance outlined in the FHWA Safe Transportation for Every Pedestrian (STEP) guide and the collected data, high-visibility crosswalk markings and crossing warning signs can be considered at this location, but are not required due to the low number of anticipated pedestrian traffic generated by the development. Because there is no existing sidewalk on the west side of New Hampshire Avenue and there are no marked crossings currently, at least one marked crossing is recommended to provide convenient access to the existing sidewalk on the east side of the roadway.**

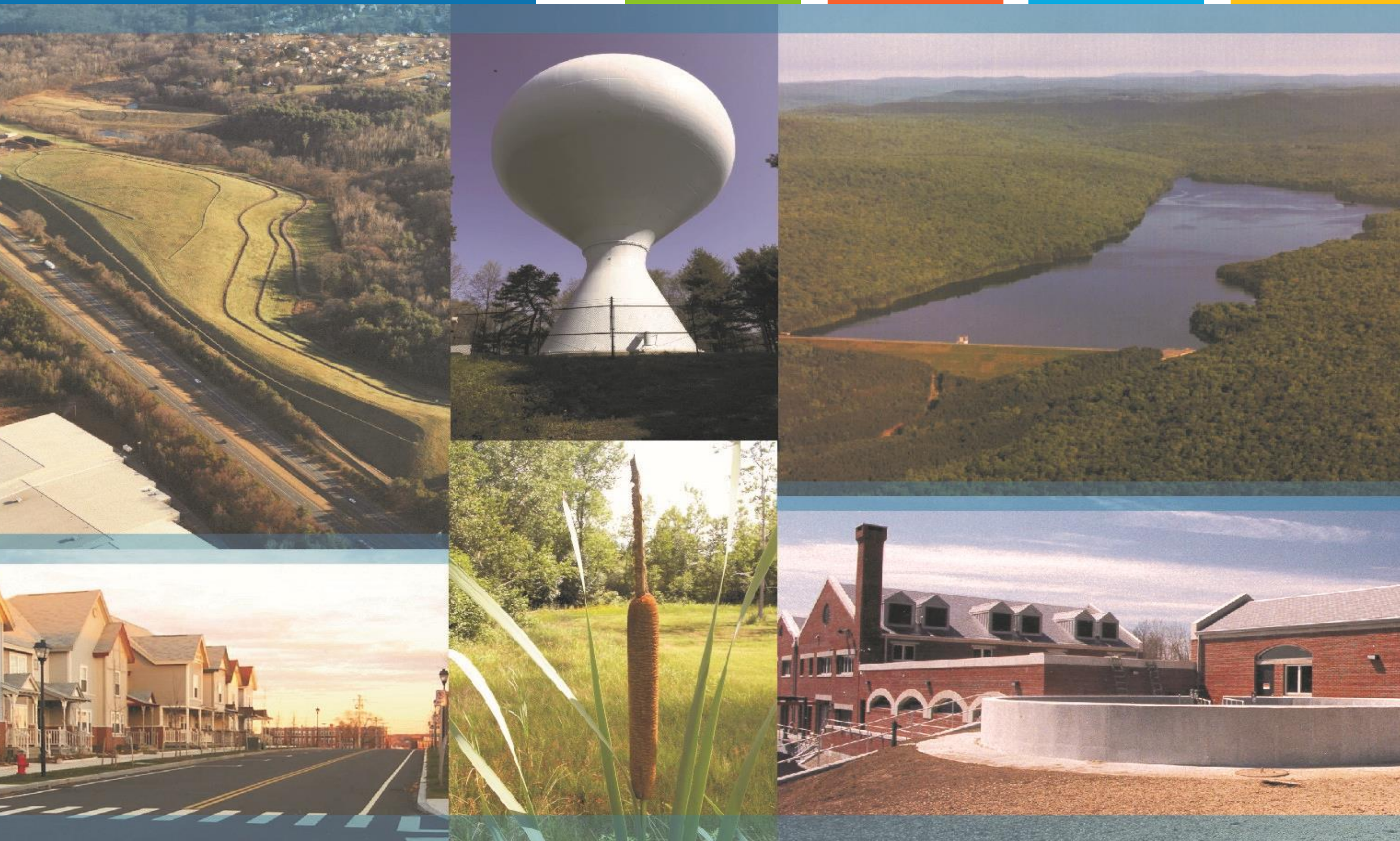
Sincerely,

TIGHE & BOND, INC.

Greg E. Lucas, PE, PTOE, RSP1
Senior Project Manager

Enclosures February 2023 Revised Traffic Impact Assessment

\\tighebond.com\data\Data\Projects\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Report_Evaluation\Traffic Impact Study\Rev Subission-Peer Review (February 2023)\2023-02-13 Traffic Peer Review Response 1.docx



Advanced Manufacturing Facility
100 New Hampshire Avenue

TRAFFIC IMPACT ASSESSMENT

Procon, INC.

October 7, 2022

Revised February 17, 2023

Tighe&Bond

100% Recyclable

Appendix

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Section 1
Introduction

This Traffic Impact Assessment (TIA) evaluates the potential traffic impact of the proposed manufacturing facility, located at 100 New Hampshire Avenue within the Pease International Tradeport in Portsmouth, NH. The TIA was prepared in accordance with NHDOT and industry standards. The Project Site is bounded by Rochester Avenue to the west, New Hampshire Avenue to the east, Stratham Street to the north, and Newfields Street to the south. The site is bounded by industrial, manufacturing, and office land uses, consistent with the Tradeport as a whole. The Site location is shown in Figure 1.

The applicant plans to construct a 209,750± square foot advanced manufacturing facility on the presently vacant lot on site and within a portion of the roadway right-of-way of Rochester Avenue from Stratham Street to Newfields Street. Access to the Site will be provided via four driveways – two on New Hampshire Avenue providing access to employee and visitor parking, and two on Rochester Avenue providing access to loading areas at the north and south ends of the proposed facility. As part of the project, parking will be provided by two on-site surface parking lots accessible with a total of 147 parking spaces. The proposed Site Plan Layout is enclosed in Appendix H. The proposed facility is expected to be complete and occupied in 2025.

Based on the analyses conducted herein, it is the professional opinion of Tighe & Bond that while the adjustment of collected volumes to an assumed pre-pandemic condition and the addition of background growth on a 13-year horizon to the 2035 design year results in undesirable LOS at some area intersections, the traffic expected to be generated by the proposed manufacturing development is has a negligible effect on traffic operations within the study area.

Section 2 Existing Conditions

The Project Site is bounded by Rochester Avenue to the west, New Hampshire Avenue to the east, Stratham Street to the north, and Newfields Street to the south. The following sections describe the roadways and intersections included within the study area.

2.1 Roadways

2.1.1 New Hampshire Avenue

New Hampshire Avenue is classified as an urban major collector and maintained by the City of Portsmouth. The roadway runs primarily in the north to south direction connecting Pease Boulevard to the north and Durham Street, International Drive and Corporate Drive to the south. Near the project site, New Hampshire Avenue is generally a two-lane roadway with approximate 15-foot travel lanes separated by a double yellow center line. No marked shoulder or edge lines are provided. The roadway widens to provide marked left turn lanes northbound at Rochester Avenue, and both northbound and southbound at Exeter Street/Manchester Square.

A five-foot (min.) sidewalk is located on the east side of the roadway for the entirety of New Hampshire Avenue. The speed limit is posted at 35 mph in both directions.

2.1.2 Pease Boulevard

Pease Boulevard is classified as an urban major collector and is maintained by the City of Portsmouth and Town of Newington. The roadway is located north of the site location and runs primarily in the east-west direction connecting US Route 4 On/Off Ramps to the east and Pease Air National Guard Base to the west. Between Arboretum Drive/New Hampshire Avenue and International Drive, the Pease Boulevard cross section varies. Pease Boulevard at Arboretum/New Hampshire Avenue starts as a three-lane roadway (two westbound, one eastbound) with 11-foot travel lanes and narrow shoulders. The single eastbound travel lane widens to two lanes approaching International Drive, with two 11-foot travel lanes in each direction and narrow shoulders, a dedicated eastbound left turn lane, and two westbound left turn lanes. Pease Boulevard widens to a five-lane section eastbound with four 11-foot wide through lanes and a right-turn lane to the US Route 4 southbound on-ramp, with the four travel lanes aligning with two left turn lanes and two through lanes at the US Route 4 northbound ramps. Four 11-foot travel lanes are also carried westbound under the US Route 4 overpass, with two left turn lanes to the southbound on-ramp and two through lanes. The roadway continues west of US Route 4 as Gosling Road.

A five-foot sidewalk is provided on both sides of Pease Boulevard between Arboretum Drive/New Hampshire Avenue and International Drive, with a 10-foot buffered multi-use path provided on the north side of the roadway between International Drive and the US Route 4 southbound off-ramp. A 6-foot sidewalk is provided on the north side of Pease Boulevard between the US Route 4 ramps. The speed limit is posted at 35 mph in both directions.

2.1.3 Grafton Road

Grafton Road is classified as an urban major collector and maintained by the City of Portsmouth. The roadway runs in a northeast to southwest alignment connecting Corporate Drive to the northeast and Route 33 (Greenland Road) to the southwest. Grafton Road is typically a two-lane roadway with 12-foot travel lanes, widening to provide a two-lane approach with separate left and right turn lanes at its northeastern termini at Corporate Drive and its southern termini at Route 33. Shoulder lane widths vary along the roadway. Narrow shoulder widths are found near the Aviation Avenue intersection which gradually increases to 3-foot shoulders on the west side of the roadway and 5-foot shoulder on the east side of the roadway. Near Pease Golf Course Driveway/Park & Ride Driveway, the shoulder lane width increases to 10 feet on the east side of the roadway. Between Pease Golf Course Driveway/Park & Ride Driveway and Route 33, the shoulder width on both sides of the roadway is 10 feet which reduces to 3 feet on the west side of the roadway with no marked shoulder on the east at Route 33 intersection. A 10-foot buffered multi-use path is provided on the northwest side of the roadway. The speed limit is posted at 35 mph in both directions.

2.1.4 Route 33 (Greenland Road)

Route 33 (Greenland Road) is classified as an urban minor arterial and maintained by the State of New Hampshire. The roadway runs primarily in the east to west direction connecting Route 151 (Portsmouth Avenue) to the west of the study area and US Route 1 (Lafayette Road) to the east of the study area. Between the I-95 Southbound ramps and Grafton Road, Route 33 is a four-lane divided roadway with 11-foot travel lanes and 8-foot-wide shoulders on both sides of the roadway. Route 33 continues as an undivided four-lane roadway east of Grafton Road, with 11-foot travel lanes and 8-foot shoulders. Shoulder widths are narrower were dedicated turn lanes are provided at Grafton Road and at the I-95 Northbound ramps. No pedestrian accommodations are provided east of Grafton Road, with a speed limit of 35 mph.

2.2 Study Area Intersections

2.2.1 Gosling Road at US Route 4 Northbound Ramps

Gosling Road intersects the US Route 4 Northbound Ramps to the east of the US Route 4 (Spaulding Turnpike) overpass at a signalized intersection, with the Northbound off-ramp approaching from the south and the Northbound on-ramp departing to the north. The Gosling Road eastbound approach provides four lanes, with two left-turn lanes and two through travel lanes. The Gosling Road westbound approach consists of three lanes, with two through lanes and one shared through/right-turn lane. The left-most westbound through lane aligns with a left-turn lane at the downstream southbound ramp intersection. The northbound off-ramp approach provides four lanes, with two left-turn lanes and two right-turn lanes. Left turn movements from Gosling Road eastbound and from the northbound off-ramp are controlled with exclusive signal phases. The northbound on-ramp provides two lanes departing the intersection. As previously described, a sidewalk is provided on the north side of Gosling Road through the intersection, with a crosswalk across the northbound on-ramp. A concurrent pedestrian traffic signal phase is provided for this crosswalk. Marked edge lines are provided on all approaches with a 1-to-2-foot offset from the curb or edge of roadway.

2.2.2 Pease Boulevard at US Route 4 Southbound Ramps

Pease Boulevard intersects the US Route 4 Southbound Ramps to the west of the US Route 4 (Spaulding Turnpike) overpass at a signalized intersection, with the Southbound off-ramp approaching from the north and the Southbound on-ramp departing to the south. The Pease Boulevard westbound approach provides four lanes, with two left-turn lanes and two through travel lanes. The Pease Boulevard eastbound approach consists of five lanes, with four through lanes and one exclusive right-turn lane. The two left-most eastbound through lanes align with the left-turn lanes at the downstream northbound ramp intersection. The southbound off-ramp approach provides four lanes, with two left-turn lanes and two right-turn lanes. Left turn movements from Pease Boulevard westbound and from the southbound off-ramp are controlled with exclusive signal phases. The southbound on-ramp provides two lanes departing the intersection. As previously described, a sidewalk is provided on the north side of Pease Boulevard through the intersection, with a crosswalk across the southbound off-ramp. A concurrent pedestrian traffic signal phase is provided for this crosswalk. Marked edge lines are provided on all approaches with a 1-to-2-foot offset from the curb or edge of roadway.

2.2.3 Pease Boulevard at International Drive

International Drive intersects Pease Boulevard from the north and south to form a 4-way, signalized intersection. Pease Boulevard is median divided, with the eastbound approach providing an exclusive left-turn lane and two through travel lanes, while the westbound approach provides two left-turn lanes and two through lanes. The north leg of International Drive is median divided and provides a wide, unmarked southbound approach, which is of adequate width to accommodate two vehicles side-by-side. International Drive northbound provides one shared left/through lane and two channelized right turn lanes under signal control. Sidewalks are provided on both sides of Pease Boulevard west of the intersection, on both sides of International Drive to the south, on the west side of International Drive to the north, and on the north side of Pease Boulevard to the east. Crosswalks are provided across all four approaches and across the channelized northbound right-turn lanes, and concurrent pedestrian traffic signal phases are provided. Marked edge lines are provided on Pease Boulevard, with a 1-to-2-foot offset from the curb or edge of roadway. Variable width shoulders are provided on International Drive south of the intersection, ranging from 2 to 8 feet.

2.2.4 Pease Boulevard at Arboretum Drive and New Hampshire Avenue

Arboretum Drive intersects Pease Boulevard from the north and New Hampshire Avenue intersects from the south to form a 4-way, stop controlled intersection. Pease Boulevard provides two lanes eastbound, with an exclusive left-turn lane and a shared through/right-turn lane. All other approaches provide one general purpose lane. Sidewalks are provided on the north side of Pease Boulevard on both sides of the intersection, and on the south side of Pease Boulevard east of the intersection. Crosswalks are provided across the east and north legs of the intersection. Marked edge lines with a 1-to-2-foot offset are provided on Pease Boulevard east of the intersection, with 6-foot shoulders on Arboretum Drive north of the intersection.

2.2.5 New Hampshire Avenue at Exeter Street and Manchester Square

Exeter Street intersects New Hampshire Avenue from the west and Manchester Square intersects from the east to form a 4-way, unsignalized intersection with stop control on Exeter Street and Manchester Square. Exclusive left turn lanes are provided on New Hampshire Avenue in both directions, and an exclusive right turn lane is provided on

Manchester Square westbound. All other movements are provided through single general purpose or shared lanes on each approach. Sidewalks are present on the east side of New Hampshire Avenue and on the south side of Exeter Street and Manchester Square, with crosswalks across the south and east legs of the intersection. No marked shoulders are present.

2.2.6 New Hampshire Avenue and Corporate Drive at Durham Street and International Drive

New Hampshire Avenue and Corporate Drive form the north and south legs, respectively, of a 4-way unsignalized intersection, with Durham Street approaching from the west and International Drive approaching from the east under stop control. All approaches provide single general-purpose lanes, with no marked shoulders. Sidewalks are provided on the north side of Durham Street and International Drive, on the east side of New Hampshire Avenue, and on both sides of Corporate Drive. Crosswalks are provided across the north and west legs of the intersection.

2.2.7 Corporate Drive at Grafton Road

Grafton Road intersects Corporate Drive from the southwest under stop control at a 3-way, T-intersection. Corporate Drive southbound provides a through travel lane and a right-turn lane, while Corporate Drive northbound provides a left-turn lane and a through lane. Grafton Road widens at its approach to Corporate Drive to provide separate left and right turn lanes. No shoulders or edge lines are present. Sidewalks are provided on the south side of Grafton Road and on the east side of Corporate Drive, with a crosswalk across the south leg of the intersection.

2.2.8 Grafton Road at Aviation Avenue

Aviation Avenue intersects Grafton Road from the north to form a 3-way, T-intersection, with Aviation Avenue under stop control. All approaches provide a single general-purpose lane, with a wide departure lane on Aviation Avenue to accommodate truck turns from Grafton Road. A multi-use path is provided along the northwest side of Grafton Road, with a wide crosswalk across Aviation Avenue. 1-to-2-foot shoulders are provided on Grafton Road, with 1-to-4-foot shoulders on Aviation Avenue.

2.2.9 Grafton Road at Golf Course and Park & Ride Driveways

The driveway for the Pease Golf Course approaches from the west and the combined driveway for the Portsmouth Transportation Center and Park & Ride lot approaches from the east to form a 4-way, unsignalized intersection with Grafton Road. The golf course and Park & Ride driveways are stop controlled. Grafton Road provides a single general-purpose lane in each direction at this intersection with typical 8-foot shoulders that taper and narrow to approximately 1-foot at the intersection. The driveway approaches also feature a single general-purpose lane, with no marked shoulders. A multi-use path is provided along the west side of Grafton Road, with a wide crosswalk across the golf course driveway.

2.2.10 Grafton Road at I-95 Southbound Off-Ramp

I-95 Southbound Exit 3A includes a direct off-ramp to Grafton Road. Grafton Road is median divided in the vicinity of the off-ramp, prohibiting left turns to Grafton Road southbound. The ramp provides a single-lane approach under stop control, while Grafton Road provides a single lane northbound through the intersection.

2.2.11 Grafton Road at Route 33 (Greenland Road)

Grafton Road intersects Route 33 (Greenland Road) from the north to form a 3-way, T-type, signalized intersection. Grafton Road southbound has a two-lane approach with exclusive left and right turn lanes. Route 33 eastbound provides an exclusive left-turn lane and two through lanes, while the westbound approach provides two through lanes and a right-turn lane. The north and west legs of the intersection are median divided. The multi-use path along the west side of Grafton Road continues adjacent to the intersection, turning towards the west and continuing on the north side of Route 33; however, no connection to the intersection is provided and no crosswalks or other pedestrian accommodations are provided. A narrow 2-foot shoulder is provided on the Grafton Road approach, with 7-to-10-foot shoulders provided on Route 33.

2.2.12 Route 33 (Greenland Road) at I-95 Southbound Ramps

I-95 Southbound Exit 3B provides an off-ramp to Route 33 (Greenland Road) to the west of Grafton Road, creating a 3-way, T-type signalized intersection. Route 33 westbound provides a four-lane approach with two left-turn lanes and two through lanes, while Route 33 eastbound provides three through lanes and a right-turn lane to the I-95 southbound on-ramp. The I-95 southbound off-ramp provides two left turn lanes and a right turn lane, while the on-ramp contains two lanes departing the intersection. The multi-use path continues along the north side of Route 33, but does not directly connect to the intersection, and no crosswalks or other pedestrian accommodations are provided.

2.2.13 Route 33 (Greenland Road) at I-95 Northbound Ramps

The I-95 Northbound ramps intersect Route 33 (Greenland Road) at a 3-way, T-type signalized intersection. Route 33 eastbound provides two through lanes at the intersection, with a channelized ramp departing Route 33 in advance of the intersection, yielding to, and merging with the on-ramp serving the left turn from Route 33 westbound, which provides an exclusive left-turn lane and two through lanes. The northbound off-ramp provides separate left and right turn lanes. 6-foot shoulders are provided on Route 33, with 1-to-2-foot left and right shoulders on the off-ramp. No pedestrian accommodations are provided in the vicinity of the intersection.

2.3 Traffic Volumes

Turning movement counts (TMC) were collected at the study area intersections on a typical weekday in February 2022 during the weekday morning (7:00 AM to 9:00 AM) and afternoon peak hour (4:00 PM to 6:00 PM). Automatic traffic recorder (ATR) data was collected on Pease Boulevard, just west of the US Route 4 southbound ramps during a 96-hour period from Wednesday thru Saturday. The ATR location was strategically chosen to align with the NHDOT Count Station (LOC ID 82379024) to serve as a basis for comparison of existing traffic volumes to recent NHDOT traffic volumes to determine if adjustments to traffic volumes should be made. The historical traffic volumes on Pease Boulevard at this location are presented below in Table 1 below.

TABLE 1
Pease Boulevard Historical Traffic Volumes

Year	AADT	Peak Hour Traffic Volumes		Source
		AM Peak	PM Peak	
2015	21,000	2,160	2,272	NHDOT (October)[1]
2016	21,420	Not Available		NHDOT Growth Estimate[2]
2017	21,848	Not Available		NHDOT Growth Estimate[2]
2018	20,100	1,835	2,052	NHDOT July[3]
2019	20,341	Not Available		NHDOT Growth Estimate[2]
2020	17,168	Not Available		NHDOT Growth Estimate[2]
2021	15,807	1,212	1,558	NHDOT (August)
2022	17,175	1,211	1,428	Tighe & Bond February 2022 ATR[4]

[1]Peak Hour Traffic Volumes Adjusted based on 2017 Seasonal Adjustment Factor to Peak
[2]Based on NHDOT Yearly Growth Rates
[3]Peak Hour Traffic Volumes Adjusted based on 2018 Seasonal Adjustment Factor to Peak
[4]Total Daily Traffic and Peak Hour Traffic Volumes Adjusted based on 2019 Seasonal Adjustment Factor to Peak

The variance in volumes over time, and specifically the decrease in volume between 2019 and 2022, represent the impact of the COVID-19 pandemic on work schedules and commuting patterns. Traffic volume trends nation- and region-wide confirm that traffic volumes have generally returned to pre-pandemic levels in 2022; however, current NHDOT guidance requests that 2022 traffic volumes should be adjusted upward to assume a return to 2019 pre-pandemic volumes. This likely represents a conversative analysis but cannot be adequately confirmed as such until multiple years of data can confirm current trends in post-pandemic traffic volumes.

Based on a review of the collected traffic volumes and comparison to the 2019 traffic volumes, it was determined the existing peak hour traffic volumes should be adjusted by a factor of 53% during the weekday morning peak period, and 45% during the weekday afternoon peak period. These adjustment factors were determined by reviewing the historical NHDOT traffic volume data during the peak hour time periods and comparing it to the 2022 peak hour volumes. Because the 2019 and 2022 peak hour time periods do not align due to changes in travel patterns, the higher peak hour traffic volume for each year was used as a basis for comparison. NHDOT seasonal adjustment factors were applied to both the historical volumes and existing traffic volumes per NHDOT guidelines.

While the application of these adjustment factors aligns with NHDOT guidance on review and adjustment of post-pandemic traffic volumes, it should be understood that application of adjustment factors based on ATR data from Pease Boulevard across all turning movements within the study area may artificially inflate turning movements and overstate calculated operational delay and resultant capacity analysis results.

The raw TMC and ATR data are provided in Appendix A. The NHDOT historical traffic volumes on Pease Boulevard, seasonal adjustment factors, and historical growth rates are enclosed in Appendix B. The Traffic Volume Adjustment Factor calculation are provided in Appendix C. Adjusted 2022 Existing Peak Hour Traffic Volumes are provided in Figure 2.

2.4 Capacity and Queue Analyses - Existing Conditions

Capacity and queue analyses were performed for the study intersections for the 2022 Existing Conditions during the weekday morning and weekday afternoon peak hours. Analyses were conducted using Trafficware Synchro Studio 11 software, which conducts the analysis based on *Highway Capacity Manual (HCM)* methodology. Consistent with NHDOT guidelines, analyses for signalized intersections were conducted using methods of the 2000 HCM, while analysis for unsignalized intersections utilized the HCM 6th Edition methodology. The analysis results are categorized in terms of Level of Service (LOS), which describes the qualitative intersection operational conditions based on the calculated average delay per vehicle. A summary of the HCM capacity analysis methodology and a detailed definition of LOS is provided in Appendix F. The queue analysis results are summarized based upon the length of vehicle queueing on an intersection approach. For unsignalized intersections, queues are quantified for 95th percentile (design queues). For signalized intersections, queues are quantified by 95th percentile (design) and 50th percentile (average) queues. Tables 4 and 5 in Section 7 summarize the capacity and queue analyses results, respectively. Capacity analysis worksheets with full inputs, settings, and results are provided in Appendix G.

As shown in Table 4, the conservative application of COVID adjustment factors to represent a pre-pandemic condition creates an assumed pre-pandemic Existing condition which predicts notable operational delay throughout the study area. While many intersections and individual intersection approaches operate at LOS D or better during the peak hours, the following predict unfavorable and failing operations:

- **Pease Boulevard at International Drive:**
  - The intersection operates at overall LOS E with failing operations of LOS F on the northbound right turn movement during the weekday afternoon peak hour.
- **Pease Boulevard at US Route 4 Southbound Ramps:**
  - The intersection operates at overall LOS F during the weekday morning peak hour with failing operations on the southbound right turn movement.
  - The westbound left movement operates at LOS E during the weekday afternoon peak hour.
- **Pease Boulevard at US Route 4 Northbound Ramps:**
  - The intersection operates at overall LOS E during the weekday morning peak hour, with failing operations on the northbound left turn movement.
- **Route 33 (Greenland Road) at I-95 Southbound Ramps:**
  - Failing operations are experienced on the westbound left turn and northbound through movements during the weekday morning peak hour.
  - Failing operations are experienced on the westbound left, northbound through, and southbound left movements during the weekday afternoon peak hour.
  - The intersection operates at overall LOS F during the weekday morning peak and afternoon peak hours.
- **Route 33 (Greenland Road) at Grafton Road:**
  - The eastbound left and through movements operate at LOS F during the weekday morning peak hour.

- The eastbound left, westbound through, and southbound right movements operate at LOS F during the weekday afternoon peak hour.
- The intersection operates at overall LOS F during the weekday morning peak and afternoon peak hours.
- Predicted 95th percentile queues exceed the available storage on the eastbound left movement during the weekday morning peak hour.

- **Route 33 (Greenland Road) at I-95 Northbound Ramps:**
  - The intersection operates at overall LOS E during the weekday morning peak hour. The westbound left turn movement operates at LOS E, while the northbound left and right turn movements experience failing LOS F operations during this same time period.
  - Failing overall intersection operations of LOS F are experienced during the weekday afternoon peak hour, with failing operations on the eastbound right movement. LOS E operations are experienced on the westbound left and northbound left movements during this time period.
  - Predicted 50th and 95th percentile queues exceed available storage on the northbound right movement during the weekday morning peak hour and on the eastbound right and westbound left movements during the afternoon peak hour.
- **Pease Boulevard at Arboretum Drive/ New Hampshire Avenue:**
  - The westbound left turn and southbound movements operate at LOS E during the weekday morning peak hour.
  - Overall failing operations of LOS F are experienced at the intersection as well as on the northbound movement during the weekday afternoon peak hour.
- **New Hampshire Avenue at Exeter Street/ Manchester Square:**
  - The westbound left turn movement operates at LOS E during both the weekday morning and weekday afternoon peak hours.
- **New Hampshire Avenue/Corporate Drive at International Drive/Durham Street:**
  - The stop-controlled International Drive approach operates at LOS F during the weekday afternoon peak hour.
- **Grafton Road at Aviation Avenue:**
  - The eastbound movement operates at failing LOS F during the weekday afternoon peak hour.
- **Grafton Road at Pease Golf Course/Park & Ride Driveways:**
  - The westbound movement from the Park & Ride driveway operates at LOS F during both peak periods.
  - The eastbound movement operates at LOS F during the weekday afternoon peak hour.
- **Grafton Road at I-95 Southbound Off-ramp:**
  - The westbound right turn movement from the off-ramp operates at LOS F during the weekday morning peak hour.

2.5 Collision History

Crash data was collected from police reports from the City of Portsmouth Police Department and Town of Newington Police Department for the most recent three-year period between January 2019 and December 2021 for the study area intersections. At the time of study completion, updated crash data was not available for the intersections of New Hampshire Avenue/Corporate Drive at Durham Street/International Drive and Corporate Drive at Grafton Road; in lieu of updated data, crash data from 2007 to 2009 has been provided from a historical report, and will be supplemented by more recent data once available. Table 2 on the following page provides a summary of the collisions within the study area. Appendix E includes detailed collision summaries for each of the study intersections.

As shown in Table 2, there were 66 motor vehicle collisions reported in the study area during the three-year period analyzed. Crashes occurred most frequently at the intersection of New Hampshire Avenue at Exeter Street and Manchester Square, with eleven collisions, accounting for about 17% of the reported total. The intersection of Grafton Road at the Pease Golf Course and Park & Ride Driveways experienced the second highest number of collisions with nine, accounting for about 14% of the reported total. The Route 33 (Greenland Road) at Grafton Road and Corporate Drive at Grafton Road each experienced eight collisions, each representing approximately 12 percent of the total. The intersections of Pease Boulevard at the Us Route 4 Southbound Ramps and New Hampshire Avenue/Corporate Drive at Durham Street/International Drive each experienced seven collisions, each representing approximately 11 percent of the total. The remaining intersections experienced five or fewer crashes within the study period. For the three-year period, the intersections of Grafton Road at the I-95 Southbound off-ramp and Route 33 (Greenland Road) at the I-95 Southbound ramps did not have any reported collisions based on data provided by the City of Portsmouth.

TABLE 2
Study Area Collision History Summary

	2007	2008	2009	2019	2020	2021	Total	Percent
Gosling Road at US Route 4 NB Ramps				1	0	3	**4**	**6.1%**
Pease Boulevard at US Route 4 SB Ramps				1	3	3	**7**	**10.6%**
Pease Boulevard at International Drive				1	0	0	**1**	**1.5%**
Pease Blvd at NH Ave/ Arboretum Dr				1	1	3	**5**	**7.6%**
NH Ave at Exeter St/ Manchester Sq				4	4	3	**11**	**16.7%**
Grafton Road at Aviation Avenue				2	2	0	**4**	**6.1%**
Grafton Road at Golf Course/Park and Ride				4	1	4	**9**	**13.6%**
Route 33 at Graton Road				5	1	2	**8**	**12.1%**
Route 33 at I-95 NB Ramps				1	1	0	**2**	**3.0%**
NH Ave at International Dr/ Durham Street	1	2	4				**7**	**10.6%**
Corporate Drive at Graton Road	3	5	0				**8**	**12.1%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

More detailed collision history summary data is provided in Appendix E. The most frequent types of collision were angle and rear-end, accounting for about 39% and 24% of the total collisions within the study area, respectively. The third most frequent collision type was single vehicle crashes with animal or fixed objects which made up about 8% of the total collisions. The remaining crashes were sideswipe – same direction, accounting for about 5% of the total collisions. The fifteen crashes summarized from historical data from 2007 to 2009 are unclassified, as detailed data was not available for these intersections.

About 86% of collisions occurred on weekdays, spread throughout the day. With the remaining 14% occurring on weekends. Weather and road surface conditions were only provided by the Newington Police Department and was available for the two intersections where historical data was utilized. 24 out of the 32 reported collisions in the study area for which weather data was available occurred when the weather was clear. The remaining eight collisions occurred when it was raining or snowing. 22 of the 32 reported collisions occurred when the road surface was dry.

The collision data indicates no reported fatalities. One reported serious injury was reported for an angle collision at the intersection of New Hampshire Avenue at Exeter Street/Manchester Square. An additional serious injury crash was reported in the historical data reviewed for the intersection of Corporate Drive at Grafton Road. The remaining 64 crashes resulted in minor injuries or property damage only. There were no pedestrian or cyclist crashes reported in the three-year period.

2.6 Public Transportation

The Cooperative Alliance for Seacoast Transportation (COAST) provides transit service within the study area. Bus Route 42 is the primary bus route in the study area with stops along New Hampshire Avenue including two bus stops at the site location (New Hampshire Ave at Stratham Street and New Hampshire Avenue at Newfields Street). Bus Route 42 also have bus stops along Grafton Road to the Portsmouth Transportation Center/Park & Ride and provides service to downtown Portsmouth. The route operates from 6:43AM to 6:34PM Monday through Friday. Bus Route 40 also operates in the study area with a bus stop at the Portsmouth Transportation Center and provides access to downtown Portsmouth. The route operates from 7:24 AM to 7:46 PM Monday through Friday. Bus Route 42 and 40 map and schedule are included in Appendix J.

Section 3
No Build Conditions

The No-Build Condition represents the projection of traffic volumes and operating conditions without the anticipated additional site generated traffic. Consistent with NHDOT guidelines, the study area is analyzed for an Opening Year (2025) and Design Year (2035). This section describes the growth and development considerations included in the 2025 and 2035 No-Build traffic volumes.

3.1 Traffic Growth

To develop the traffic volumes for the 2025 and 2035 No-Build Conditions, the 2022 Existing traffic volumes were grown by one percent per year to represent the general growth of traffic on the study area roadways. This growth rate is consistent with the average growth rate in NHDOT Region E - Southeast, the region in which Portsmouth is located. Background NHDOT growth data is included in Appendix B.

NHDOT and the Pease Development Authority (PDA) were contacted about other planned/approved developments in the area that may add new traffic to the study area prior to 2025. The following developments were identified:

- Lonza Biologics: This project proposes to construct 1,046,000± sf of new industrial space and 700 new parking spaces contained within two garages along Corporate Drive as an expansion of existing facilities located between Goose Bay Drive and International Drive.

- 73 Corporate Drive: This project proposes to construct additional medical office space adjacent to the existing Wentworth-Douglass facility on Corporate Drive.

- Pease Surface Transportation Master Plan: Traffic volumes for the full occupancy of existing buildings and projects that are planned or under construction are included in the No-Build Condition.

Traffic volumes for these projects were obtained from record studies and assigned to the study area intersections in the No-Build conditions. Data for background development projects are included in Appendix D. It is assumed that other smaller developments or small vacancies in existing developments are captured by the background traffic growth rate.

The 2025 and 2035 No-Build traffic volumes for the weekday morning and weekday evening peak hours are shown in Figures 3 and 4, respectively.

3.2 Planned Roadway Improvements

Information obtained by NHDOT was used to identify roadway improvement projects in the area that may affect future traffic operations. A geometric improvement project at the intersection of Pease Boulevard at New Hampshire Avenue/ Arboretum Drive was identified in the NHDOT Ten-Year Plan (NHDOT Project No. 42879) and was considered when developing the No-Build conditions analysis. The project proposes to construct a northbound right turn lane on the northbound leg of the intersection. The project is fully funded with construction currently scheduled for 2025. The improvement was included in the 2035 No-Build and 2035 Build Conditions analyses.

3.3 Capacity and Queue Analyses - No-Build Conditions

Capacity and queue analyses were conducted for the 2025 and 2035 No-Build Conditions traffic volumes for both peak periods using the methodology described in Section 2.4. Tables 4 and 5 in Section 7 summarize the capacity and queue results, respectively. Capacity analysis worksheets with full inputs, settings, and results are provided in Appendix G.

The increase in expected future traffic based on the 1 percent per year compounded growth rate and the site-specific development added to the future No-Build Conditions result in some degradation of operations when compared to existing conditions. As described in Section 3.2, the construction of a northbound right-turn lane at the intersection of Pease Boulevard at New Hampshire Avenue/ Arboretum Drive is included in the 2035 No-Build Condition. In the 2025 No-Build Condition, most overall intersections and individual intersection approaches operate a similar LOS to the Existing Condition, which includes adjustment to an assumed pre-pandemic traffic level. The 2035 No-Build Condition includes some additional degradation of LOS based on the addition of ten years of compounded annual growth. The following identifies intersections and approaches which predict a degradation of LOS or increased delay exceeding available storage between the 2022 Existing and 2025 No-Build Condition, and/or between the 2025 and 2035 No-Build Condition:

- **Pease Boulevard at International Drive:**
  - The intersection degrades to overall LOS F in the 2035 No-Build Condition with failing operations of LOS F on the westbound left and northbound right movements during the weekday morning peak hour. Westbound left movement queues exceed available storage in the 2035 No-Build Condition.
  - The overall intersection degrades to LOS F operation in the 2025 No-Build Condition during the weekday afternoon peak hour.
  - The northbound right movement queues exceed available storage in both No-Build Conditions during the weekday afternoon peak hour.
- **Pease Boulevard at US Route 4 Southbound Ramps:**
  - The intersection continues to operate at overall LOS F during the weekday morning peak hour with failing operations on the southbound right movement. The southbound left movement also degrades to LOS E in the 2035 weekday morning peak hour. Both 50th and 95th percentile queues also exceed available storage in 2035.
  - The intersection continues to operate at overall LOS F with a degradation in LOS from E to F for the westbound left turn movement during the weekday afternoon peak hour in the 2035 No-Build condition.
- **Pease Boulevard at US Route 4 Northbound Ramps:**
  - The intersection continues to operate at overall LOS E in the 2025 No-Build Condition but degrades to LOS F in the 2035 No-Build Condition during the weekday morning peak hour.

  - In the 2035 No-build Condition, the eastbound left turn and shared westbound through/ right movements degrade to LOS E during the weekday afternoon peak hour.
  - The northbound left movement experiences design queues that exceed available storage in both No-Build years during the weekday morning peak hour.
  - The eastbound through and westbound through/ right movement queues exceed available storage in 2035.
- **Route 33 (Greenland Road) at I-95 Southbound Ramps:**
  - Overall failing operations continue to be experienced during both peak periods.
  - The westbound right movement experiences degradation in LOS from D to E in the 2035 No-Build Condition during the weekday morning peak hour.
- **Route 33 (Greenland Road) at Grafton Road:**
  - The intersection continues to operate at LOS F during the weekday morning and weekday afternoon peak hours.
  - The eastbound through movement degrades to LOS E operation in the 2025 No-Build Condition and to LOS F operation in the 2035 No-Build Condition.
  - The southbound left turn movement degrades to LOS F in the 2035 No-Build Condition during the weekday afternoon peak hour. Design queues exceed available storage in 2035.
- **Route 33 (Greenland Road) at I-95 Northbound Ramps:**
  - The westbound left turn from Route 33 continues to operate at LOS E during the weekday morning and weekday afternoon peak hour in both No-Build conditions. Predicted queue lengths continue to exceed available storage.
  - The northbound left and right turns from the off-ramp continue to operate at LOS F during the weekday morning peak hour in both No-Build Conditions. The northbound left turn movement continues to operate at LOS E during the weekday afternoon peak hour.
  - The eastbound right turn continues to operate at LOS F in both No-Build Conditions during the weekday afternoon peak hour.
  - In 2035, the eastbound through movement degrades to LOS E during the weekday morning peak hour and degrades to LOS F during the weekday afternoon peak hour.
  - The overall intersection degrades to LOS F in the 2035 No-Build condition during the weekday morning peak hour.
- **Pease Boulevard at Arboretum Drive/ New Hampshire Avenue:**
  - The southbound movement degrades to LOS F in the 2025 No-Build Condition and the westbound left turn movement degrades to LOS F in the 2035 No-Build Condition during the weekday morning peak hour.
  - The northbound movements experience improved operations with the addition of the dedicated right-turn lane in the 2035 No-Build Condition, however the shared northbound left/ through movement does experience LOS F during the

weekday afternoon peak hour, but with a decrease in delay of over 70 seconds as compared to 2025 No-Build.

- **New Hampshire Avenue at Exeter Street/ Manchester Square:**
  - The shared westbound left/ through movement degrades to LOS F in the 2025 No-Build Condition during the weekday morning peak hour and in the 2035 No-Build Condition during both peak hours.
  - The Exeter Street eastbound movement degrades to LOS E in the 2035 No-Build Condition during the weekday morning peak hour.
- **Corporate Drive at Grafton Road:**
  - The eastbound left movement degrades to LOS F in the 2035 No-Build Condition during both peak periods. 95th percentile queues are estimated to exceed available storage in 2035.
- **Grafton Road at Pease Golf Course/Park & Ride Driveways:**
  - The westbound movement continues to operate at LOS F during the weekday morning peak period in both No-Build years.
  - The eastbound and westbound movements continue to operate at LOS F during the weekday afternoon peak period.
- **Grafton Road at I-95 Southbound Off-Ramp:**
  - The westbound right turn movement continues to operate at LOS F in both No-Build years during the weekday morning peak hour.

Section 4
Proposed Conditions

The proposed 209,750± square foot manufacturing facility will include approximately 115 surface parking spaces. The proposed development is expected to be complete and occupied in 2025. The Site Layout Plan is presented in Appendix H.

4.1 Site Access

Access to the Site will be provided via four full access, unsignalized driveways, with two on New Hampshire Avenue for passenger cars, and two on Rochester Avenue for trucks. The proposed northern site driveway on New Hampshire Avenue is located approximately 280 feet south of Stratham Street and provides access to a 99-vehicle space surface parking lot, while the second driveway is located approximately 700 feet south on New Hampshire Avenue and provides access to a 48-space surface parking lot. The two proposed driveways on Rochester Avenue provide access to two truck loading dock areas at the northern and southern end of the proposed facility. It is anticipated that trucks will access the Site to/ from Rochester Avenue to the south.

Intersection sight distance was reviewed at the proposed Site driveways in accordance with criteria set forth in the AASHTO publication *A Policy on the Geometric Design of Highways and Streets*, 7th Edition, 2018. Available site distances were estimated based on the site layout plan and available aerial mapping. The posted speed of 35 miles per hour on New Hampshire Avenue was used as a basis for the analysis.

Based on AASHTO guidelines and the posted speed of the roadway, the intersection sight distance requirement is 386 feet for passenger cars and 592 feet for combination trucks turning left under *Case B – Left Turn from Stop*. Each site driveway provides intersection sight distance exceeding the AASHTO requirements for passenger vehicles and combination trucks except for the northern site driveway on Rochester Avenue. Intersection sight distance is limited looking to the north due to the sharp curvature at Rochester Avenue/ Stratham Street. While the available sight distance is approximately 250 feet, this is not expected to be a safety issue due to the perceived low traffic volumes in this industrial area and the expected reduced vehicle speeds due to the 90 degree turn between Rochester Avenue and Stratham Street.

4.2 Multi-Modal Accommodations

Multi-modal access is provided in the general vicinity of the proposed development. Site improvements include a sidewalk along the western side of the facility, with connections to the employee and visitor parking areas and the building itself, as well as a proposed crosswalk across New Hampshire Avenue at Newfields Street which connects to existing sidewalk on the east side of New Hampshire Avenue. Near the site location there is a sidewalk network that connects to Pease Boulevard and to Grafton Road. Just east of the proposed development on the eastern side of New Hampshire Avenue there is a 5-foot-wide sidewalk that connects to the multi-use path along Grafton Road and Route 33 (Greenland Road). These facilities may encourage cycling and walking to the development. In addition, the previously mentioned COAST bus stops are located at the intersection of Stratham Street at New Hampshire Avenue and Newfields Street at New Hampshire

Avenue directly in front of the proposed development with bus connection at the Portsmouth Transportation Center to downtown Portsmouth.

4.3 Trip Generation

Site generated traffic volumes were estimated using rates published in the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, 2021. The proposed land use for the project site is advanced manufacturing, which uses innovative technologies in the manufacturing process, which in turn reduces the number of employees needed over a traditional manufacturing process; however, since ITE does not have a comparable Land Use Code (LUC) for advancing manufacturing, and in the absence of end user data for similar facilities, LUC 140 – Manufacturing was used to estimate traffic for the development. This likely represents a conservative estimate of expected trips for the proposed use. Table 3 summarizes the trip generation estimates, which have been separated into passenger car trips and truck trips.

TABLE 3
Site-Generated Traffic Summary

Proposed - 209,750 SF Manufacturing Facility (Passenger Cars)			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	105	32	137
Weekday Afternoon	46	103	149
Weekday	451	451	902

Proposed - 209,750 SF Manufacturing Facility (Trucks)			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	3	3	6
Weekday Afternoon	2	4	6
Weekday	47	47	94

Proposed - 209,750 SF Manufacturing Facility (Total Vehicles)			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	108	35	143
Weekday Afternoon	48	107	155
Weekday	498	498	996

Based on the ITE data, the proposed development is expected to generate 996 vehicles over a typical weekday, comprised of 902 passenger car vehicle trips and 94 truck trips. During the weekday morning peak hour, the project is expected to generate 143 vehicle trips, with 108 entering and 35 exiting, comprised of 137 passenger car trips and 6 truck trips. During the weekday afternoon peak hour, the project is expected to generate 155 vehicle trips, with 48 entering and 107 exiting, comprised of 149 passenger car trips and 6 truck trips.

While the nearby COAST bus stop and sidewalk facilities in the area may provide additional options for employees to travel to the proposed development, no credit was taken for these trips.

4.4 Arrival and Departure Distribution

The distribution of the proposed site generated traffic entering and exiting the Site was applied to the roadway network based on existing travel patterns within the study area. Separate distribution patterns were determined for passenger car and truck trips. Truck trip distribution is partially based on prior consultation with PDA and distributes trucks exclusively to and from I-95 to the south, prohibiting site-generated truck distribution on Pease Boulevard.

Arrive and distribution patterns are shown in Figures 5 and 6, and are as follows:

<u>Passenger Cars:</u>

- 25% East to/from Pease Boulevard/Gosling Road
- 25% South to/from I-95
- 20% Northeast to/from I-95
- 20% Northwest to/from US Route 4
- 10% East (Local) to/from Route 33

<u>Trucks:</u>

- 55% South to/from I-95
- 45% Northeast to/from I-95

Site generated employee and visitor passenger car trips are expected to balance between the two site driveways on New Hampshire Avenue based on parking availability and the proximity of parking to the employee’s work area. Similarly, truck trips are expected to be split between the two driveways on Rochester Avenue based on availability and proximity of loading dock locations.

Figures 7 and 8 show the proposed site generated traffic distributed to the study area roadways for the weekday morning and afternoon peak hours.

Section 5
Build Conditions

The anticipated site generated traffic volumes associated with the proposed development were added to the 2025 and 2035 No-Build Conditions traffic volumes to develop the 2025 and 2035 Build Conditions traffic volumes, which are presented in Figure 9 and 10, respectively, for the weekday morning and afternoon peaks.

5.1 Capacity and Queue Analyses – Build Conditions

Capacity and queue analyses were conducted for the 2025 and 2035 Build Conditions for the peak hours using the methodology described in Section 2.4. Tables 4 and 5 in Section 7 summarize the capacity and queue results, respectively. Capacity analysis worksheets with full inputs, settings, and results are provided in Appendix D.

Many of the study area intersections and individual intersection approaches continue to operate at acceptable LOS D or better during the peak hours in the 2025 and 2035 Build Conditions. Study area intersections that were identified in Section 2.4 and 3.3 to operate at LOS E or LOS F in the No-Build Conditions continue to operate at the same LOS under Build Conditions, except for the following:

- **Pease Boulevard at US Route 4 Northbound Ramps:**
  - The overall intersection LOS degrades to E and the eastbound left movement degrades to LOS F in the 2035 Build Condition during the weekday afternoon peak hour.
- **Route 33 (Greenland Road) at I-95 Northbound Ramps:**
  - The westbound left movement degrades to LOS E in the 2035 Build Condition during the weekday afternoon peak hour.

A review of calculated queue lengths in Table 5 reveals that the majority of queues are unchanged between the No-Build and Build Conditions for both 2025 and 2035 or increase by approximately 1-2 car lengths or fewer. An exception is the Route 33 (Greenland Road) at I-95 Northbound ramps intersection, which experiences increasing queues extending beyond available capacity in the weekday afternoon peak hour for both the eastbound right turn and westbound left turn to I-95 Northbound, and the westbound through lane. Storage is limited for the westbound left turn and through movements by the adjacent signalized intersection of Sherburne Road approximately 500 feet east of the I-95 Northbound ramp intersection, and the existing accommodation of back-to-back left turn lanes for Route 33 westbound at I-95 and eastbound at Sherburne Road.

Increasing queues are also predicted for the Grafton Road eastbound left turn at Corporate Drive in both peak periods, which operates at LOS F in both the 2035 No-Build and 2035 Build conditions.

Section 6
Conclusions & Recommendations

1. A 209,750± square foot advanced manufacturing facility is proposed to be constructed on the presently vacant lot on New Hampshire Avenue in the Pease Tradeport area in Portsmouth, NH. The development will provide approximately 147 parking spaces to accommodate employee and visitor parking. The proposed development is expected to be complete and occupied by 2025.

2. Access to the Site will be provided via for full access, unsignalized driveways. Two driveways on New Hampshire Avenue will serve passenger cars, while two driveways on Rochester Avenue will serve truck traffic to and from the proposed loading docks. Trucks will access the site to and from Rochester Avenue to the south.

3. The proposed land use for the project site is advanced manufacturing, which uses innovative technologies in the manufacturing process, which in turn reduces the number of employees needed over a traditional manufacturing process. ITE Land Use Code 140 – Manufacturing was used to estimate traffic for the development, which is based on more traditional manufacturing methods. This likely represents a conservative estimate of expected trips for the proposed use.

4. Based on the ITE data, the proposed manufacturing facility is expected to generate 996 vehicles over a typical weekday, comprised of 902 passenger car vehicle trips and 94 truck trips. During the weekday morning peak hour, the project is expected to generate 143 vehicle trips, with 108 entering and 35 exiting, comprised of 137 passenger car trips and 6 truck trips. During the weekday afternoon peak hour, the project is expected to generate 155 vehicle trips, with 48 entering and 107 exiting, comprised of 149 passenger car trips and 6 truck trips.

5. The project proposes internal and adjacent roadway sidewalk connections, creating and promoting connections to a robust existing sidewalk network along study area roadways.

6. Vehicle collision history, compiled from local police and historic reports, do not indicate a significant or notable pattern of collisions in the study area.

7. Consistent with NHDOT guidelines, existing traffic volumes have been adjusted based on a comparison between 2022 and 2019 data to represent a pre-pandemic condition. Application of adjustment factors based on ATR data from Pease Boulevard across all turning movements within the study area may artificially inflate turning movements and overstate calculated operational delay and resultant capacity analysis results. 2022 traffic volumes adjusted to an assumed pre-pandemic condition predict notable operational delay throughout the study area.

8. The capacity analyses show that the study area intersections will continue to operate at the same LOS under Build Conditions as in No-Build Conditions for both the 2025 opening year and 2035 design year, with the following exceptions:

   a. The intersection of Pease Boulevard at the US Route 4 Northbound Ramps degrades from LOS D to LOS E, with the eastbound left turn movement degrading from LOS E to LOS F, in the weekday afternoon peak hour between the 2035 No-Build and Build Condition.

b. The westbound left turn movement at the intersection of Route 33 (Greenland Road) at the I-95 Northbound Ramps degrades from LOS D to LOS E in the weekday afternoon peak hour between the 2035 No-Build and Build Condition.

c. At the intersection of Pease Boulevard at Arboretum Drive and New Hampshire Avenue, planned improvements result in overall LOS D in the weekday afternoon peak hour for the 2035 No-Build Condition, which degrades to LOS E in the Build condition.

9. Based on the results of the foregoing analysis, it is the professional opinion of Tighe & Bond that while the adjustment of collected volumes to an assumed pre-pandemic condition and the addition of background growth on a 13-year horizon to the 2035 design year results in undesirable LOS at some area intersections, the addition of site-generated traffic is expected to have a negligible effect on traffic operations within the study area.

Section 7
Additional Tables

TABLE 4
Intersection Operation Summary - Capacity

Weekday Morning Peak Hour

	Lane Use	2022 Existing LOS	Delay	V/C	2025 No-Build LOS	Delay	V/C	2025 Build LOS	Delay	V/C	2035 No-Build LOS	Delay	V/C	2035 Build LOS	Delay	V/C
Traffic Signal - Pease Boulevard at International Drive																
Overall		**C**	**20.4**	**0.82**	**C**	**21.0**	**0.82**	**C**	**21.2**	**0.83**	**F**	**80.6**	**1.19**	**F**	**81.5**	**1.20**
Pease Boulevard	EBL	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00
	EBTR	D	39.0	0.47	D	40.7	0.50	D	41.0	0.52	D	42.9	0.54	D	43.2	0.56
	WBL	C	22.4	0.82	C	22.7	0.82	C	23.3	0.83	F	118.1	1.19	F	121.8	1.20
	WBTR	A	6.5	0.41	A	6.5	0.41	A	6.7	0.44	A	7.7	0.47	A	7.8	0.49
International Drive	NBTL	C	30.8	0.05	C	32.1	0.05	C	32.4	0.05	C	32.2	0.05	C	32.4	0.05
	NBR	D	39.0	0.70	D	42.1	0.73	D	42.4	0.73	F	100.0	1.08	F	102.3	1.08
	SB	C	30.6	0.02	C	31.9	0.02	C	32.2	0.02	C	31.9	0.02	C	32.2	0.02
Traffic Signal - Pease Boulevard at US Route 4 SB On/Off Ramps																
Overall		**F**	**80.7**	**1.37**	**F**	**89.2**	**1.43**	**F**	**96.2**	**1.49**	**F**	**157.1**	**1.94**	**F**	**162.8**	**1.98**
Pease Boulevard	EBT	C	24.3	0.18	C	24.3	0.18	C	24.4	0.19	C	24.8	0.26	C	24.8	0.27
	EBR	C	24.0	0.11	C	23.9	0.12	C	23.9	0.12	C	24.2	0.17	C	24.2	0.17
	WBL	C	27.0	0.27	C	27.2	0.28	C	27.9	0.28	C	28.9	0.31	C	29.4	0.31
	WBT	B	17.2	0.55	B	17.4	0.57	B	17.2	0.58	B	19.4	0.74	B	19.3	0.75
US Route 4 SB On/ Off Ramps	SBL	D	44.2	0.84	D	46.5	0.87	D	46.7	0.87	E	62.3	0.97	E	62.3	0.97
	SBR	F	214.2	1.37	F	241.9	1.43	F	265.5	1.49	F	>300	1.94	F	>300	1.98
Traffic Signal - Pease Boulevard at US Route 4 NB On/Off Ramps																
Overall		**E**	**58.5**	**1.14**	**E**	**63.8**	**1.18**	**E**	**63.3**	**1.18**	**F**	**106.4**	**1.47**	**F**	**105.4**	**1.47**
Pease Boulevard	EBL	B	15.4	0.13	B	15.2	0.13	B	15.1	0.14	B	14.3	0.23	B	14.3	0.24
	EBT	D	40.6	0.73	D	40.9	0.75	D	40.6	0.75	D	41.2	0.85	D	41.2	0.85
	WBTR	C	20.1	0.26	C	20.1	0.27	C	20.2	0.29	C	20.8	0.36	C	21.0	0.37
US Route 4 NB On/ Off Ramps	NBL	F	114.1	1.14	F	129.6	1.18	F	130.2	1.18	F	256.8	1.47	F	256.8	1.47
	NBR	C	30.2	0.17	C	30.5	0.18	C	30.5	0.18	C	32.5	0.31	C	32.5	0.31
Traffic Signal - Greenland Road (State Route 33) at I-95 SB On/Off Ramps																
Overall		**F**	**114.3**	**1.39**	**F**	**127.0**	**1.43**	**F**	**128.3**	**1.43**	**F**	**181.3**	**1.58**	**F**	**182.0**	**1.58**
I-95 SB On/ Off Ramps	WBL	F	217.0	1.39	F	235.8	1.43	F	235.8	1.43	F	>300	1.58	F	>300	1.58
	WBR	D	36.8	0.72	D	39.6	0.76	D	39.6	0.76	E	57.8	0.92	E	57.8	0.92
Greenland Road (State Route 33)	NBT	F	136.3	1.23	F	156.0	1.27	F	159.5	1.28	F	249.1	1.48	F	251.5	1.48
	NBR	C	21.3	0.19	C	21.6	0.20	C	21.7	0.20	C	23.0	0.22	C	23.1	0.22
	SBL	D	38.1	0.64	D	38.3	0.65	D	38.4	0.66	D	39.7	0.73	D	40.2	0.75
	SBT	A	9.9	0.36	B	10.0	0.38	B	10.0	0.38	B	10.4	0.41	B	10.4	0.41
Traffic Signal - Greenland Road (State Route 33) at Grafton Road																
Overall		**F**	**148.3**	**2.36**	**F**	**163.2**	**2.46**	**F**	**168.8**	**2.54**	**F**	**279.4**	**3.59**	**F**	**293.4**	**3.80**
Greenland Road (State Route 33)	EBL	F	>300	2.36	F	>300	2.46	F	>300	2.54	F	>300	3.59	F	>300	3.80
	EBT	F	90.8	1.16	F	107.6	1.20	F	112.5	1.21	F	208.8	1.43	F	217.3	1.44
	WBT	C	23.0	0.73	C	23.7	0.76	C	23.7	0.76	C	27.1	0.83	C	27.1	0.83
	WBR	B	18.0	0.35	B	18.1	0.36	B	18.5	0.39	B	19.4	0.44	B	19.8	0.47
Grafton Road	SBL	C	21.7	0.51	C	21.8	0.52	C	22.0	0.54	C	23.8	0.68	C	24.0	0.69
	SBR	B	18.7	0.15	B	18.7	0.15	B	18.5	0.16	B	18.1	0.32	B	18.0	0.35
Traffic Signal - Greenland Road (State Route 33) at I-95 NB On/Off Ramps																
Overall		**E**	**62.9**	**1.22**	**E**	**69.4**	**1.26**	**E**	**74.1**	**1.33**	**F**	**107.5**	**1.49**	**F**	**116.0**	**1.57**
Greenland Road (State Route 33)	EBT	D	40.3	0.88	D	43.1	0.91	D	43.4	0.91	E	69.3	1.03	E	70.0	1.04
	EBR	C	29.7	0.55	C	30.3	0.57	C	30.5	0.57	D	38.7	0.75	D	39.5	0.77
	WBL	E	63.7	0.60	E	63.8	0.61	E	63.8	0.61	E	64.0	0.63	E	64.0	0.63
	WBT	B	13.6	0.40	B	13.8	0.42	B	13.9	0.42	B	14.6	0.47	B	14.7	0.47
I-95 NB On/ Off Ramps	NBL	F	167.2	1.22	F	182.4	1.26	F	212.6	1.33	F	281.9	1.49	F	>300	1.57
	NBR	F	108.8	1.06	F	128.5	1.12	F	128.5	1.12	F	212.4	1.33	F	229.4	1.37

Weekday Afternoon Peak Hour

	Lane Use	2022 Existing LOS	Delay	V/C	2025 No-Build LOS	Delay	V/C	2025 Build LOS	Delay	V/C	2035 No-Build LOS	Delay	V/C	2035 Build LOS	Delay	V/C
Traffic Signal - Pease Boulevard at International Drive																
Overall		**E**	**77.9**	**1.27**	**F**	**87.8**	**1.32**	**F**	**93.5**	**1.35**	**F**	**245.8**	**2.10**	**F**	**254.0**	**2.17**
Pease Boulevard	EBL	C	29.0	0.14	C	29.0	0.13	C	29.6	0.12	D	35.1	0.12	D	36.1	0.12
	EBTR	C	20.7	0.64	C	20.8	0.65	C	20.8	0.67	C	23.4	0.63	C	23.4	0.65
	WBL	C	26.3	0.16	C	26.6	0.16	C	27.5	0.17	C	31.0	0.62	C	32.6	0.63
	WBTR	B	15.6	0.40	B	15.7	0.42	B	15.7	0.43	B	13.6	0.37	B	13.4	0.38
International Drive	NBTL	B	13.4	0.03	B	13.5	0.03	B	14.4	0.03	C	21.4	0.04	C	22.6	0.04
	NBR	F	148.3	1.27	F	169.5	1.32	F	187.0	1.35	F	>300	2.10	F	>300	2.17
	SB	B	14.8	0.26	B	15.0	0.27	B	15.9	0.28	C	24.1	0.39	C	25.4	0.40
Traffic Signal - Pease Boulevard at US Route 4 SB On/Off Ramps																
Overall		**C**	**34.1**	**0.90**	**D**	**35.3**	**0.93**	**D**	**35.3**	**0.93**	**D**	**41.0**	**1.04**	**D**	**41.1**	**1.04**
Pease Boulevard	EBT	C	29.0	0.62	C	29.5	0.64	C	30.0	0.67	C	32.5	0.77	C	33.3	0.80
	EBR	C	31.1	0.61	C	32.6	0.65	C	32.6	0.65	D	50.7	0.89	D	50.7	0.89
	WBL	E	61.1	0.90	E	64.1	0.93	E	63.8	0.93	F	80.5	1.04	F	80.2	1.04
	WBT	B	11.2	0.23	B	12.1	0.24	B	12.4	0.25	B	11.5	0.33	B	11.6	0.33
US Route 4 SB On/ Off Ramps	SBL	D	36.6	0.61	D	36.9	0.62	D	36.9	0.62	D	38.3	0.68	D	38.3	0.68
	SBR	C	30.3	0.07	C	30.2	0.07	C	30.2	0.07	C	30.6	0.13	C	30.7	0.13
Traffic Signal - Pease Boulevard at US Route 4 NB On/Off Ramps																
Overall		**C**	**34.0**	**0.86**	**D**	**35.5**	**0.87**	**D**	**36.4**	**0.89**	**D**	**54.6**	**1.05**	**E**	**57.9**	**1.06**
Pease Boulevard	EBL	D	50.2	0.86	D	51.9	0.87	D	54.0	0.89	E	75.5	1.01	F	82.3	1.04
	EBT	C	21.8	0.79	C	22.6	0.82	C	23.1	0.84	C	31.9	0.95	D	36.0	0.97
	WBTR	C	34.6	0.83	D	37.3	0.87	D	38.4	0.89	E	72.0	1.05	E	75.0	1.06
US Route 4 NB On/ Off Ramps	NBL	C	32.3	0.29	C	32.3	0.30	C	32.3	0.30	C	33.7	0.43	C	33.7	0.43
	NBR	C	31.8	0.23	C	31.8	0.24	C	31.8	0.24	C	32.0	0.26	C	32.0	0.26
Traffic Signal - Greenland Road (State Route 33) at I-95 SB On/Off Ramps																
Overall		**F**	**81.1**	**1.27**	**F**	**90.5**	**1.31**	**F**	**93.0**	**1.31**	**F**	**133.8**	**1.44**	**F**	**137.1**	**1.44**
I-95 SB On/ Off Ramps	WBL	F	163.1	1.27	F	179.8	1.31	F	179.8	1.31	F	239.7	1.44	F	239.7	1.44
	WBR	C	26.0	0.13	C	26.1	0.15	C	26.1	0.15	C	26.6	0.20	C	26.6	0.20
Greenland Road (State Route 33)	NBT	F	97.3	1.13	F	111.4	1.16	F	111.4	1.16	F	163.9	1.28	F	163.9	1.28
	NBR	C	24.1	0.22	C	24.2	0.23	C	24.2	0.23	C	24.6	0.25	C	24.6	0.25
	SBL	F	93.8	1.08	F	104.9	1.11	F	122.6	1.16	F	203.9	1.35	F	223.4	1.40
	SBT	B	16.8	0.78	B	17.6	0.80	B	17.6	0.80	C	21.7	0.89	C	21.7	0.89
Traffic Signal - Greenland Road (State Route 33) at Grafton Road																
Overall		**F**	**155.4**	**2.33**	**F**	**171.1**	**2.40**	**F**	**176.4**	**2.40**	**F**	**247.9**	**2.66**	**F**	**256.2**	**2.66**
Greenland Road (State Route 33)	EBL	F	>300	2.33	F	>300	2.40	F	>300	2.40	F	>300	2.66	F	>300	2.66
	EBT	D	54.0	1.06	E	65.9	1.09	E	65.9	1.09	F	112.9	1.20	F	112.9	1.20
	WBT	F	142.5	1.25	F	158.9	1.29	F	158.9	1.29	F	218.6	1.43	F	218.6	1.43
	WBR	B	15.5	0.14	B	15.5	0.14	B	15.7	0.16	B	15.8	0.17	B	16.0	0.19
Grafton Road	SBL	C	26.9	0.79	C	28.5	0.81	D	35.6	0.88	F	103.6	1.14	F	130.9	1.21
	SBR	F	282.6	1.56	F	>300	1.62	F	>300	1.69	F	>300	2.00	F	>300	2.07
Traffic Signal - Greenland Road (State Route 33) at I-95 NB On/Off Ramps																
Overall		**F**	**86.4**	**1.43**	**F**	**100.1**	**1.55**	**F**	**108.8**	**1.61**	**F**	**198.8**	**2.26**	**F**	**210.6**	**2.33**
Greenland Road (State Route 33)	EBT	D	40.7	0.75	D	44.6	0.80	D	46.5	0.83	F	109.2	1.11	F	117.9	1.13
	EBR	F	247.2	1.43	F	298.9	1.55	F	>300	1.61	F	>300	2.26	F	>300	2.33
	WBL	E	58.9	0.86	E	57.5	0.86	E	58.0	0.87	D	53.4	0.86	E	55.3	0.87
	WBT	A	9.5	0.57	B	10.2	0.60	B	10.8	0.61	B	13.7	0.69	B	14.4	0.70
I-95 NB On/ Off Ramps	NBL	E	61.0	0.71	E	60.4	0.71	E	60.5	0.72	E	58.3	0.73	E	58.4	0.74
	NBR	D	50.2	0.34	D	49.8	0.35	D	48.9	0.35	D	49.8	0.52	D	48.9	0.52

TABLE 4 (CONTINUED)
Intersection Operation Summary - Capacity

		Weekday Morning Peak Hour															Weekday Afternoon Peak Hour														
	Lane Use	2022 Existing			2025 No-Build			2025 Build			2035 No-Build			2035 Build			2022 Existing			2025 No-Build			2025 Build			2035 No-Build			2035 Build		
		LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
Unsignalized AWSC - Pease Boulevard at Arboretum Drive/New Hampshire Avenue																															
Overall		**D**	**30.3**	**0.89**	**D**	**34.2**	**0.93**	**E**	**45.6**	**0.99**	**F**	**60.8**	**1.14**	**F**	**71.6**	**1.16**	**F**	**66.7**	**1.15**	**F**	**74.5**	**1.21**	**F**	**106.9**	**1.33**	**D**	**32.8**	**0.94**	**E**	**37.2**	**0.97**
	EB	B	12.4	0.16	B	12.8	0.17	B	13.2	0.17	B	14.6	0.21	B	14.9	0.22	C	17.4	0.50	C	18.3	0.52	C	19.3	0.55	C	24.3	0.61	D	25.4	0.63
Pease Boulevard	WBL	E	35.2	0.80	E	39.9	0.83	F	71.0	0.99	F	58.4	0.98	F	99.9	1.14	C	21.2	0.58	C	22.4	0.61	D	25.6	0.69	D	28.5	0.68	D	33.8	0.75
	WBTR	C	19.2	0.60	C	20.7	0.63	C	21.5	0.64	D	26.0	0.74	D	26.4	0.74	B	11.1	0.09	B	11.3	0.10	B	11.7	0.10	B	11.6	0.11	B	11.7	0.11
	NB	C	15.9	0.47	C	16.8	0.49	C	18.4	0.54	--	--	--	--	--	--	F	116.0	1.15	F	130.9	1.21	F	>150	1.33	--	--	--	--	--	--
New Hampshire Avenue	NBLT	--	--	--	--	--	--	--	--	--	C	15.6	0.36	C	15.9	0.37	--	--	--	--	--	--	--	--	--	F	56.8	0.94	F	62.1	0.97
	NBR	--	--	--	--	--	--	--	--	--	B	13.2	0.27	B	13.9	0.31	--	--	--	--	--	--	--	--	--	C	21.2	0.64	D	30.2	0.78
Arboretum Drive	SB	E	43.8	0.89	F	51.0	0.93	F	58.0	0.95	F	116.7	1.14	F	115.2	1.16	C	15.5	0.40	C	16.1	0.42	C	16.9	0.44	C	21.1	0.51	C	21.9	0.53
Unsignalized TWSC - New Hampshire Avenue at Exeter Street/Manchester Square																															
Exeter Street	EB	D	28.0	0.22	D	29.7	0.23	D	34.3	0.26	E	39.4	0.33	E	46.9	0.38	C	22.4	0.14	C	23.4	0.15	D	26.2	0.17	D	28.5	0.20	D	32.7	0.23
Manchester Square	WBLT	E	47.1	0.36	F	52.0	0.39	F	65.5	0.46	F	85.9	0.58	F	115.3	0.68	E	41.2	0.44	E	46.0	0.48	F	58.5	0.56	F	74.1	0.66	F	100.8	0.77
	WBR	B	10.3	0.03	B	10.4	0.04	B	10.5	0.04	B	10.6	0.04	B	10.8	0.04	B	12.8	0.08	B	13.0	0.08	B	13.8	0.09	B	13.9	0.10	B	14.8	0.11
New Hampshire Avenue	NBL	A	9.1	0.05	A	9.2	0.05	A	9.5	0.05	A	9.6	0.06	A	9.9	0.06	A	8.2	0.01	A	8.2	0.01	A	8.3	0.02	A	8.3	0.02	A	8.4	0.02
	SBL	A	8.2	0.06	A	8.2	0.06	A	8.3	0.06	A	8.3	0.07	A	8.4	0.07	A	8.9	0.02	A	8.9	0.02	A	9.1	0.03	A	9.2	0.03	A	9.4	0.03
Unsignalized TWSC - New Hampshire Avenue/Corporate Drive at International Drive/Durham Street																															
Durham Street	EB	C	15.1	0.06	C	15.4	0.06	C	16.9	0.07	C	16.8	0.08	C	18.5	0.09	C	15.6	0.08	C	16.0	0.08	C	17.7	0.09	C	17.5	0.10	C	19.6	0.12
International Drive	WB	C	16.6	0.18	C	17.2	0.19	C	19.4	0.21	C	19.5	0.23	C	22.5	0.27	F	53.3	0.84	F	63.5	0.89	F	106.7	1.04	F	133.6	1.13	F	>150	1.32
Corporate Drive	NBL	A	7.5	0.00	A	7.6	0.00	A	7.6	0.00	A	7.6	0.01	A	7.7	0.01	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00
New Hampshire Avenue	SBL	A	8.8	0.02	A	8.8	0.02	A	9.1	0.02	A	9.1	0.02	A	9.3	0.02	A	7.8	0.00	A	7.9	0.00	A	7.9	0.01	A	7.9	0.01	A	8.0	0.01
Unsignalized TWSC - Corporate Drive at Grafton Road																															
Grafton Road	EBL	C	18.1	0.70	C	19.3	0.73	C	23.8	0.80	F	140.3	1.23	F	>150	1.35	C	24.7	0.59	D	27.3	0.63	D	33.2	0.72	F	>150	2.19	F	>150	2.59
	EBR	A	9.6	0.24	A	9.7	0.25	A	9.7	0.25	B	10.7	0.38	B	10.7	0.38	A	8.9	0.11	A	8.9	0.12	A	8.9	0.12	A	9.1	0.17	A	9.1	0.17
Corporate Drive	NBL	A	7.7	0.02	A	7.7	0.02	A	7.8	0.02	A	8.0	0.11	A	8.1	0.12	B	10.3	0.23	B	10.5	0.24	B	10.9	0.25	B	14.6	0.54	C	15.9	0.58
Unsignalized TWSC - Grafton Road at Aviation Avenue																															
Aviation Avenue	EB	B	10.7	0.05	B	10.8	0.06	B	11.0	0.06	B	12.5	0.08	B	12.8	0.08	F	56.6	0.79	F	66.9	0.85	F	89.0	0.94	F	>150	1.47	F	>150	1.62
Grafton Road	NBL	A	8.9	0.23	A	9.0	0.24	A	9.2	0.25	B	10.2	0.31	B	10.3	0.32	B	10.7	0.04	B	10.9	0.04	B	11.3	0.05	B	13.0	0.06	B	13.6	0.07
Unsignalized TWSC - Grafton Road at Pease Golf Course Driveway/Park & Ride Driveway																															
Pease Golf Course Driveway	EB	B	11.3	0.02	B	11.4	0.02	B	11.7	0.02	B	13.5	0.04	B	13.9	0.04	F	78.1	0.56	F	90.9	0.62	F	120.1	0.72	F	>150	1.71	F	>150	2.71
Park and Ride Driveway	WB	F	>150	2.39	F	>150	2.82	F	>150	3.31	F	>150	7.92	F	>150	9.05	F	>150	1.89	F	>150	2.22	F	>150	2.73	F	>150	8.84	F	>150	19.88
Grafton Road	NBL	A	8.3	0.04	A	8.3	0.04	A	8.4	0.04	A	9.0	0.05	A	9.1	0.06	B	12.4	0.12	B	12.7	0.13	B	13.3	0.14	C	16.3	0.19	C	17.3	0.21
	SBL	C	17.9	0.05	C	18.6	0.06	C	19.9	0.06	C	24.4	0.09	D	26.2	0.10	A	8.9	0.02	A	9.0	0.02	A	9.1	0.02	A	9.4	0.02	A	9.5	0.02
Unsignalized TWSC - Grafton Road at I-95 SB Off Ramp																															
I-95 SB Off Ramp	WBR	F	>150	1.18	F	>150	1.28	F	>150	1.49	F	>150	2.16	F	>150	2.46	B	12.6	0.11	B	12.8	0.11	B	13.2	0.13	B	14.2	0.17	B	14.7	0.19

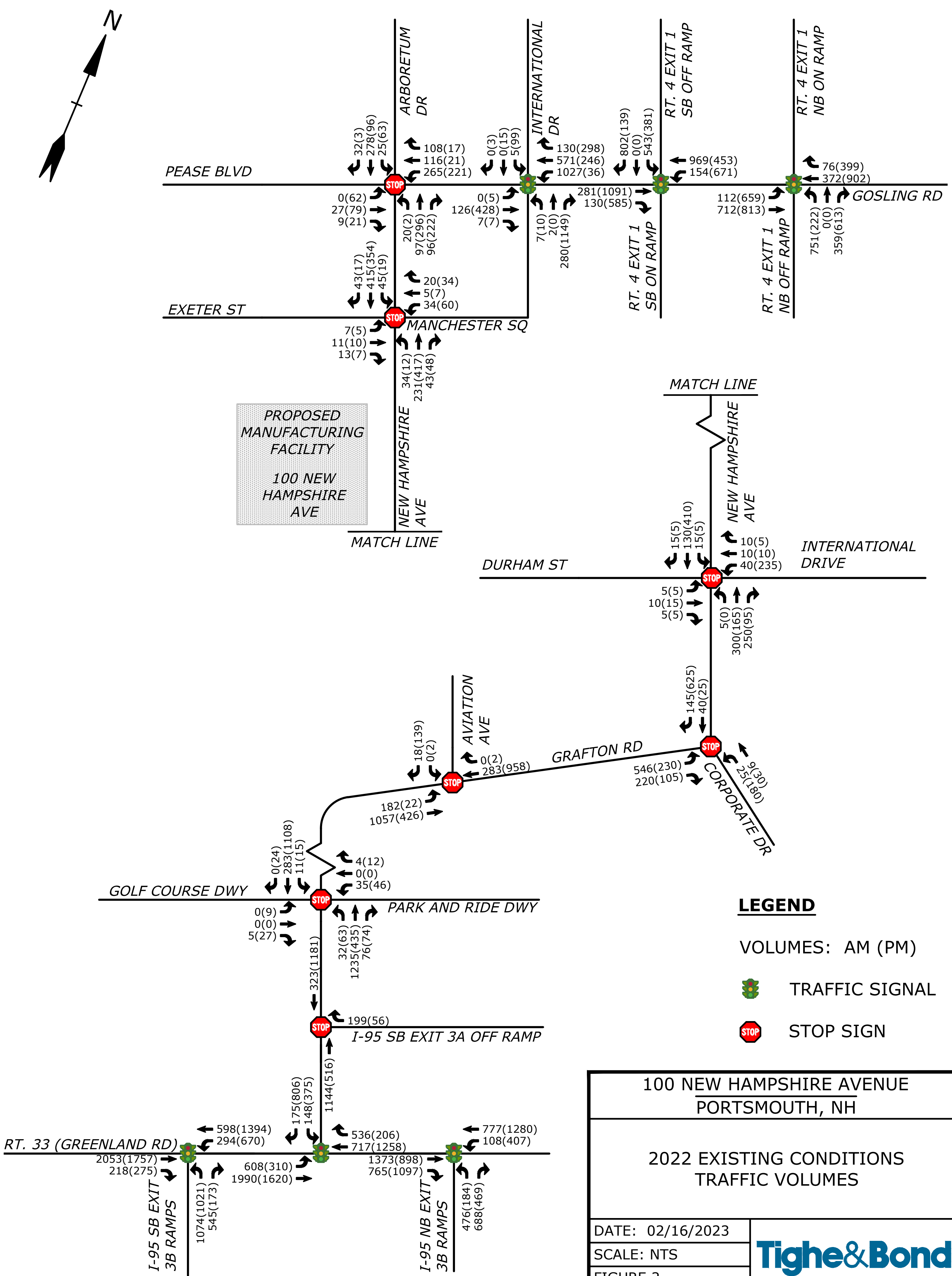
TABLE 5
Intersection Operation Summary - Queues (In Feet)

	Lane Use	Available Storage	Weekday Morning Peak Hour										Weekday Afternoon Peak Hour									
			2022 Existing		2025 No-Build		2025 Build		2035 No-Build		2035 Build		2022 Existing		2025 No-Build		2025 Build		2035 No-Build		2035 Build	
			50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th
Traffic Signal - Pease Boulevard at International Drive																						
	EBL	290	0	0	0	0	0	0	0	0	0	0	3	9	3	9	3	9	4	11	4	11
Pease Boulevard	EBTR	>1000	56	71	58	74	65	80	66	80	73	86	117	120	122	123	137	135	152	159	171	174
	WBL	690	345	339	372	356	378	362	817	700	826	709	7	20	7	21	7	21	76	125	79	129
	WBTR	>1000	113	116	121	120	133	131	148	136	162	147	40	114	41	118	46	135	50	162	55	177
	NBLT	840	6	19	6	19	6	20	7	20	7	21	3	14	3	14	3	15	4	19	4	19
International Drive	NBR	530	118	150	123	155	124	156	239	297	242	301	388	556	410	581	425	611	637	919	667	945
	SB	>1000	4	13	4	13	4	14	4	15	4	14	43	82	45	84	47	89	60	117	63	120
Traffic Signal - Pease Boulevard at US Route 4 SB On/Off Ramps																						
	EBT	>1000	46	57	48	59	50	61	72	83	75	86	204	225	211	233	222	244	267	288	279	301
	EBR	530	0	30	0	30	0	30	0	33	0	33	63	173	81	199	81	199	214	433	214	433
Pease Boulevard	WBL	370	64	66	66	68	67	68	75	66	76	67	261	339	270	336	270	329	309	314	309	310
	WBT	370	332	306	342	308	344	310	432	338	434	341	57	90	63	90	66	91	120	121	121	122
US Route 4 SB On/ Off Ramps	SBL	520	235	241	243	249	243	249	277	279	277	279	153	166	158	172	158	172	178	190	178	190
	SBR	520	478	455	511	485	539	510	776	715	799	734	0	15	0	15	0	15	0	14	0	13
Traffic Signal - Pease Boulevard at US Route 4 NB On/Off Ramps																						
	EBL	375	28	33	28	34	29	35	40	49	41	50	243	293	252	302	261	320	310	398	328	416
Pease Boulevard	EBT	375	291	343	301	353	303	356	351	381	354	384	123	141	126	145	127	147	141	458	142	480
	WBTR	460	71	107	73	110	79	118	106	152	112	160	301	366	316	392	321	416	440	538	447	545
US Route 4 NB On/ Off Ramps	NBL	360	387	404	408	422	408	422	572	569	572	569	65	99	67	102	67	102	102	145	102	145
	NBR	360	0	18	1	18	1	18	30	48	30	48	0	47	0	48	0	48	0	49	0	49
Traffic Signal - Greenland Road (State Route 33) at I-95 SB On/Off Ramps																						
I-95 SB On/ Off Ramps	WBL	675	503	601	527	624	527	624	612	708	612	708	442	559	464	581	464	581	544	662	544	662
	WBR	675	105	280	121	307	121	307	183	395	183	395	1	51	4	54	4	54	13	68	13	68
	NBT	800	593	731	627	762	631	762	765	869	769	869	466	561	491	587	491	587	582	678	582	678
Greenland Road (State Route 33)	NBR	385	0	52	0	53	0	53	0	56	0	56	0	57	0	58	0	58	0	62	0	62
	SBL	785	103	125	106	129	109	133	132	161	135	165	273	346	288	361	309	382	401	472	422	492
	SBT	>1000	106	123	111	127	111	127	126	143	126	143	354	390	376	412	376	412	460	499	460	499
Traffic Signal - Greenland Road (State Route 33) at Grafton Road																						
	EBL	400	422	632	440	649	446	649	548	711	553	711	211	341	220	351	220	351	249	385	249	385
Greenland Road (State Route 33)	EBT	>1000	526	671	556	699	562	699	707	796	712	796	391	497	413	520	413	520	493	600	493	600
	WBT	>1000	123	179	127	186	127	186	145	238	145	238	327	443	343	461	343	461	403	523	403	523
	WBR	275	0	62	0	62	0	64	0	69	0	73	0	40	0	41	0	42	0	45	0	46
Grafton Road	SBL	300	61	83	63	85	67	90	93	129	97	135	138	256	144	267	161	300	266	418	295	449
	SBR	1000	0	24	0	24	0	25	16	44	20	48	397	572	420	595	446	622	568	750	594	777
Traffic Signal - Greenland Road (State Route 33) at I-95 NB On/Off Ramps																						
	EBT	>1000	605	820	638	866	642	870	844	1060	847	1063	417	610	451	640	465	650	664	788	675	799
Greenland Road (State Route 33)	EBR	700	0	98	0	102	0	103	65	404	79	469	1039	1306	1121	1380	1174	1429	1570	1806	1617	1853
	WBL	200	104	165	107	167	107	167	119	182	119	182	392	493	401	515	401	547	435	680	441	691
	WBT	475	193	236	202	246	205	250	238	287	243	293	288	408	319	436	333	453	425	579	441	594
I-95 NB On/ Off Ramps	NBL	>1000	655	738	688	770	753	831	898	965	964	1025	178	240	183	246	194	259	215	279	226	292
	NBR	340	454	502	504	547	504	547	681	709	715	743	0	85	0	85	0	83	44	158	44	156

TABLE 5 (CONTINUED)
Intersection Operation Summary - Queues (In Feet)

			Weekday Morning Peak Hour										Weekday Afternoon Peak Hour									
	Lane Use	Available Storage	2022 Existing		2025 No-Build		2025 Build		2035 No-Build		2035 Build		2022 Existing		2025 No-Build		2025 Build		2035 No-Build		2035 Build	
			50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th
Unsignalized AWSC - Pease Boulevard at Arboretum Drive/New Hampshire Avenue																						
Pease Boulevard	EB	900	--	15	--	15	--	15	--	18	--	18	--	60	--	65	--	65	--	100	--	105
	WBL	>1000	--	188	--	208	--	328	--	273	--	403	--	80	--	85	--	102	--	123	--	150
	WBTR	>1000	--	98	--	108	--	113	--	138	--	140	--	8	--	8	--	8	--	8	--	10
New Hampshire Avenue	NB	>1000	--	63	--	68	--	78	--	--	--	--	--	593	--	638	--	848	--	--	--	--
	NBLT	>1000	--	--	--	--	--	--	--	38	--	38	--	--	--	--	--	--	--	288	--	300
	NBR	150	--	--	--	--	--	--	--	25	--	30	--	--	--	--	--	--	--	113	--	173
Arboretum Drive	SB	>1000	--	260	--	290	--	313	--	483	--	472	--	43	--	45	--	48	--	73	--	75
Unsignalized TWSC - New Hampshire Avenue at Exeter Street/Manchester Square																						
Exeter Street	EB	>1000	--	20	--	23	--	25	--	33	--	40	--	13	--	13	--	15	--	18	--	20
Manchester Square	WBLT	950	--	38	--	40	--	50	--	68	--	80	--	50	--	57	--	70	--	90	--	108
	WBR	80	--	3	--	3	--	3	--	3	--	3	--	8	--	8	--	8	--	8	--	10
New Hampshire Avenue	NBL	85	--	3	--	5	--	5	--	5	--	5	--	0	--	0	--	0	--	3	--	3
	SBL	165	--	5	--	5	--	5	--	5	--	5	--	3	--	3	--	3	--	3	--	3
Unsignalized TWSC - New Hampshire Avenue/Corporate Drive at International Drive/Durham Street																						
Durham St	EB	860	--	5	--	5	--	5	--	5	--	8	--	5	--	8	--	8	--	8	--	10
International Drive	WB	>1000	--	15	--	18	--	20	--	23	--	28	--	185	--	210	--	278	--	335	--	418
Corporate Drive	NBL	920	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
New Hampshire Avenue	SBL	>1000	--	3	--	3	--	3	--	3	--	3	--	0	--	0	--	0	--	0	--	0
Unsignalized TWSC - Corporate Drive at Grafton Road																						
Grafton Road	EBL	220	--	148	--	163	--	217	--	648	--	830	--	93	--	105	--	138	--	608	--	720
	EBR	220	--	23	--	25	--	25	--	45	--	45	--	10	--	10	--	10	--	15	--	15
Corporate Drive	NBL	>1000	--	3	--	3	--	3	--	10	--	10	--	23	--	23	--	25	--	83	--	93
Unsignalized TWSC - Grafton Road at Aviation Avenue																						
Aviation Avenue	EB	>1000	--	5	--	5	--	5	--	5	--	8	--	153	--	173	--	203	--	380	--	415
Grafton Road	NBL	>1000	--	23	--	23	--	25	--	33	--	35	--	3	--	3	--	3	--	5	--	5
Unsignalized TWSC - Grafton Road at Pease Golf Course Driveway/Park & Ride Driveway																						
Golf Course Driveway	EB	>1000	--	3	--	3	--	3	--	3	--	3	--	65	--	73	--	88	--	173	--	203
Park and Ride Driveway	WB	>1000	--	175	--	185	--	193	--	235	--	238	--	190	--	205	--	217	--	285	--	298
Grafton Road	NBL	800	--	3	--	3	--	3	--	5	--	5	--	10	--	10	--	13	--	18	--	20
	SBL	>1000	--	5	--	5	--	5	--	8	--	8	--	3	--	3	--	3	--	3	--	3
Unsignalized TWSC - Grafton Road at I-95 SB Off Ramp																						
I-95 SB Off Ramp	WB	>1000	--	318	--	360	--	460	--	705	--	813	--	10	--	10	--	13	--	15	--	18

Section 8
Figures

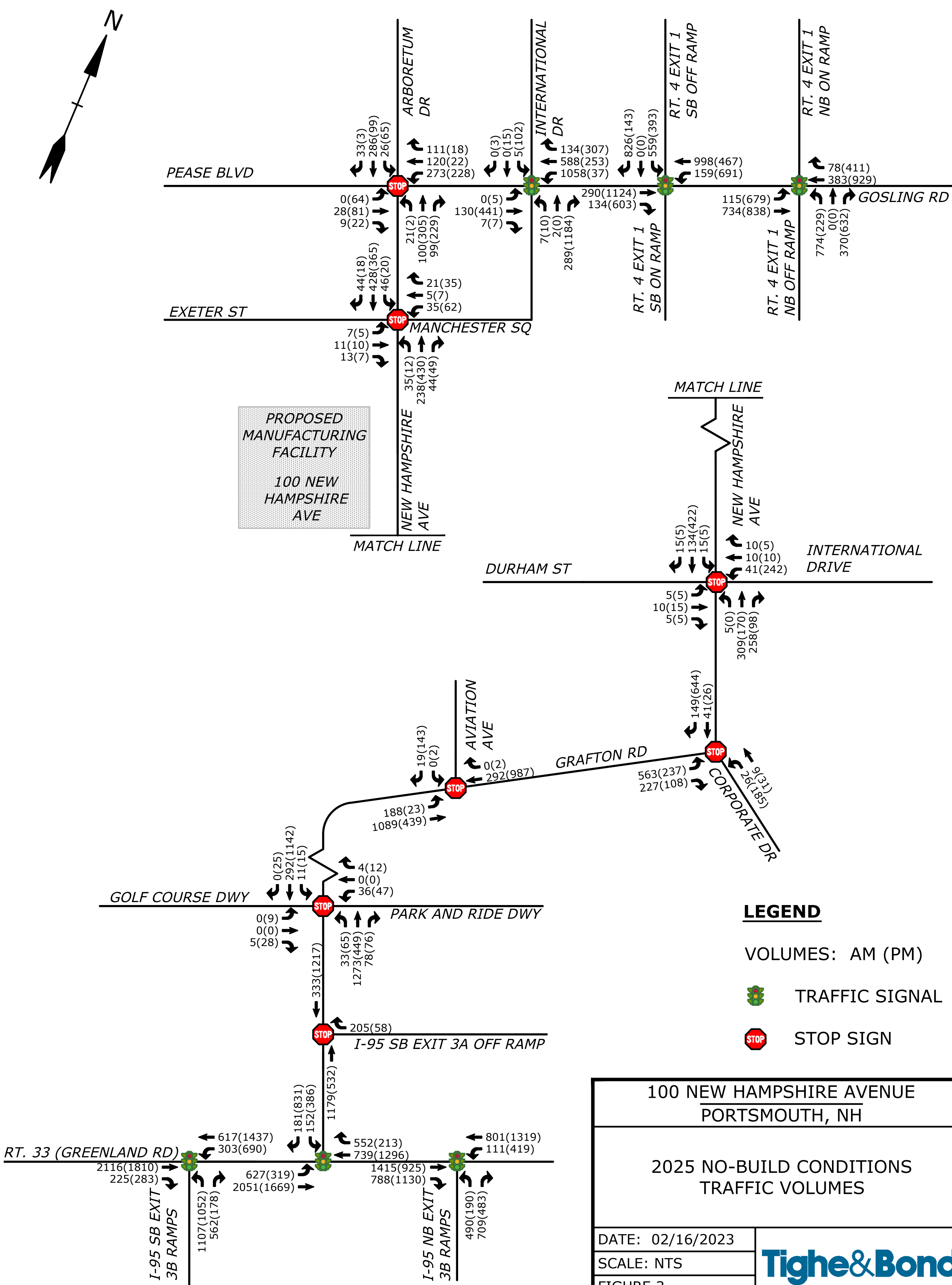


100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

2022 EXISTING CONDITIONS
TRAFFIC VOLUMES

DATE: 02/16/2023
SCALE: NTS
FIGURE 2

Tighe&Bond

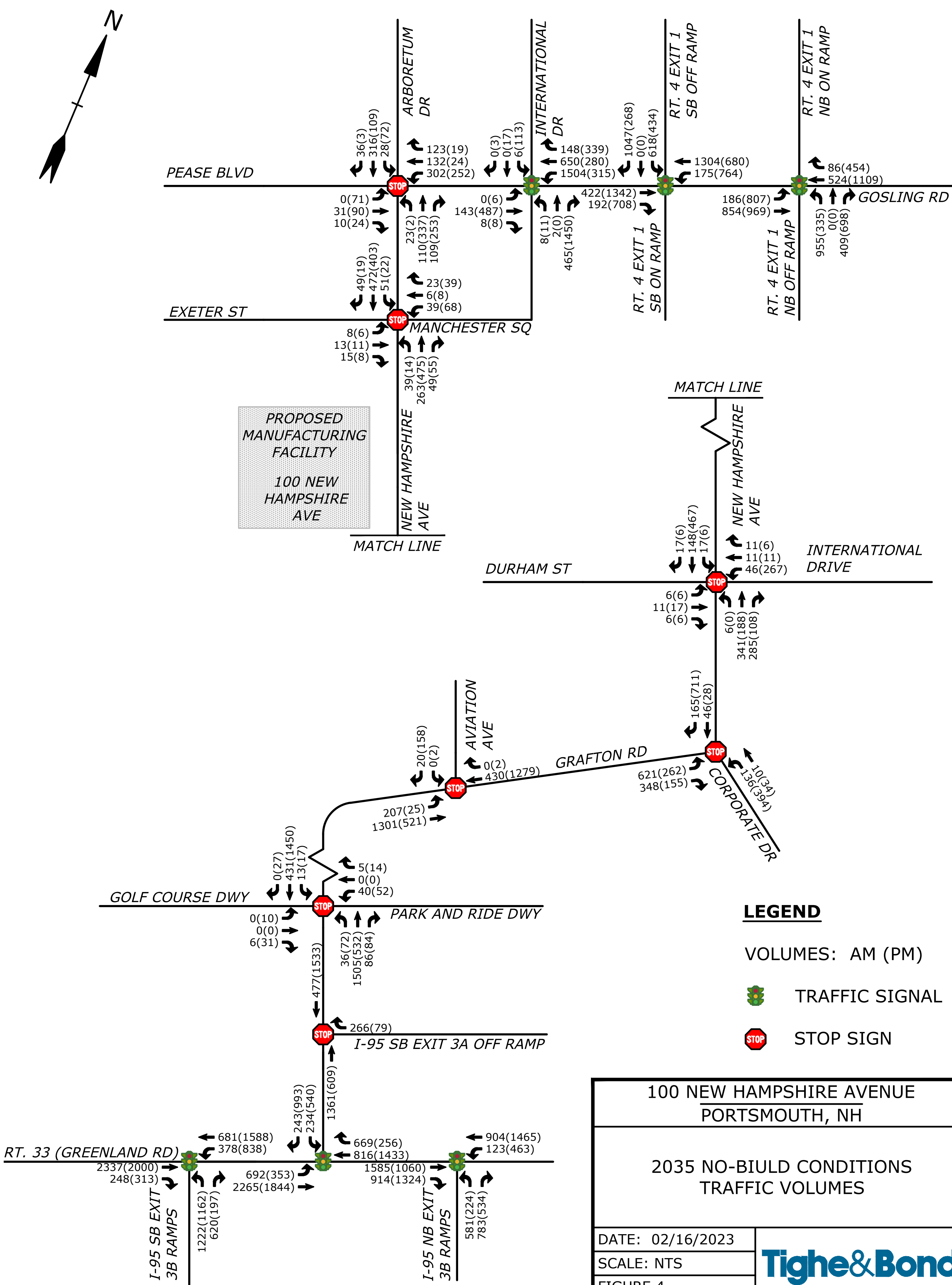


100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

2025 NO-BUILD CONDITIONS
TRAFFIC VOLUMES

DATE: 02/16/2023
SCALE: NTS
FIGURE 3

Tighe&Bond

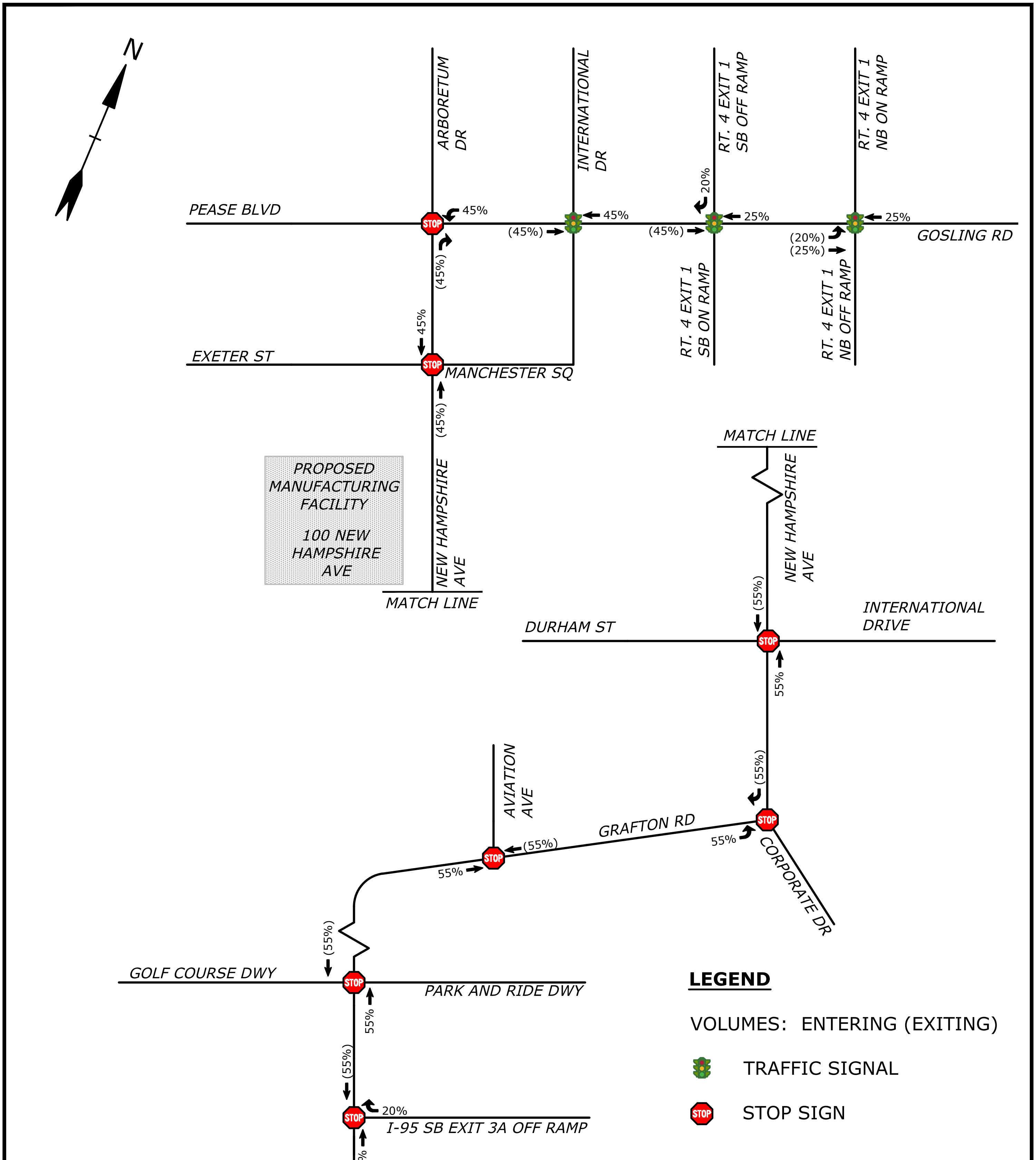


100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

2035 NO-BIULD CONDITIONS
TRAFFIC VOLUMES

DATE: 02/16/2023
SCALE: NTS
FIGURE 4

Tighe&Bond

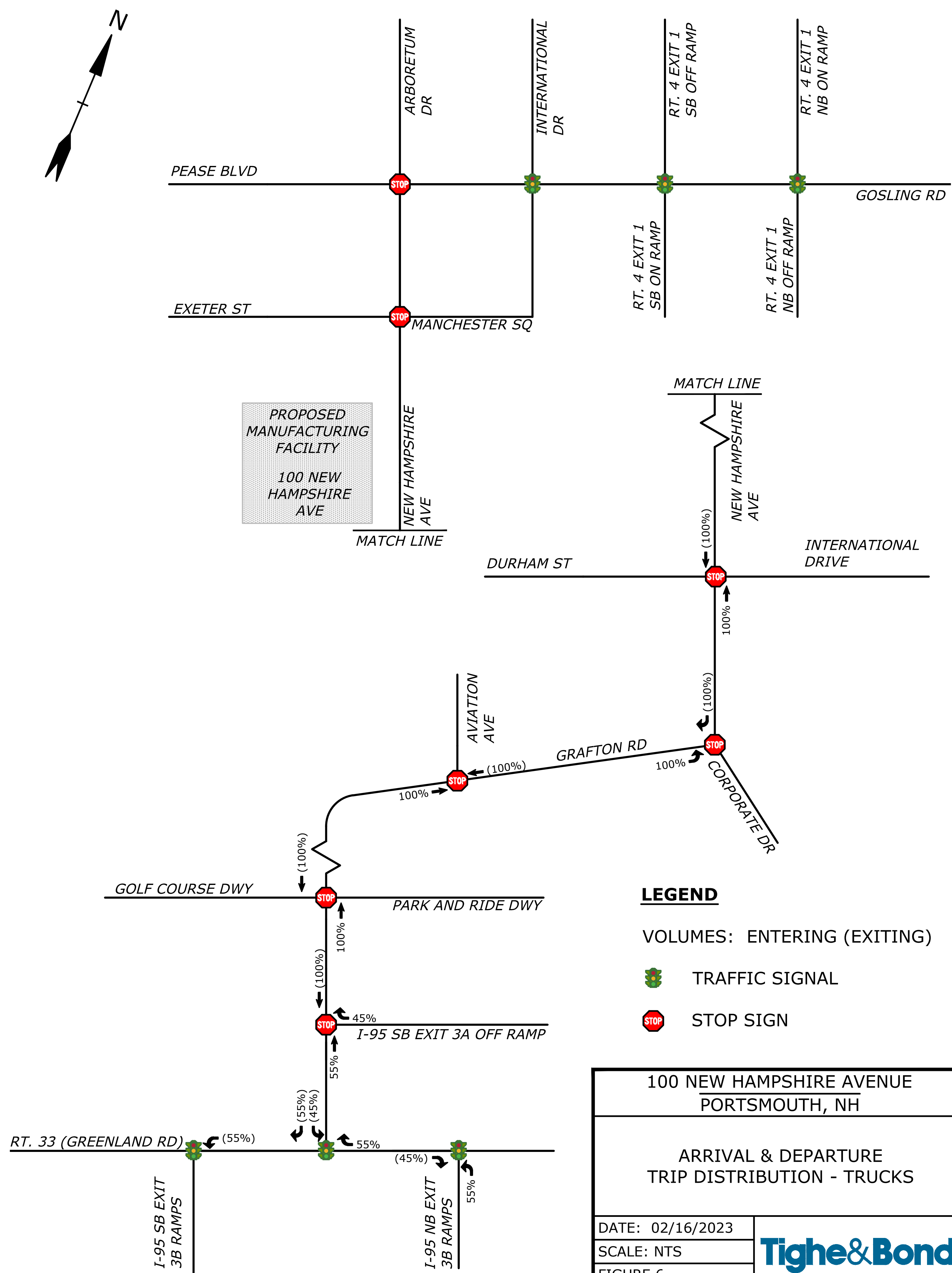


100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

ARRIVAL & DEPARTURE
TRIP DISTRIBUTION - PASSENGER CARS

DATE: 02/16/2023	Tighe&Bond
SCALE: NTS	
FIGURE 5	

Feb 16, 2023-9:09am Plotted By: RCase
Tighe & Bond, Inc. \\tighebond.com\data\Data\Projects\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Figures\Traffic Volume Figures.dwg

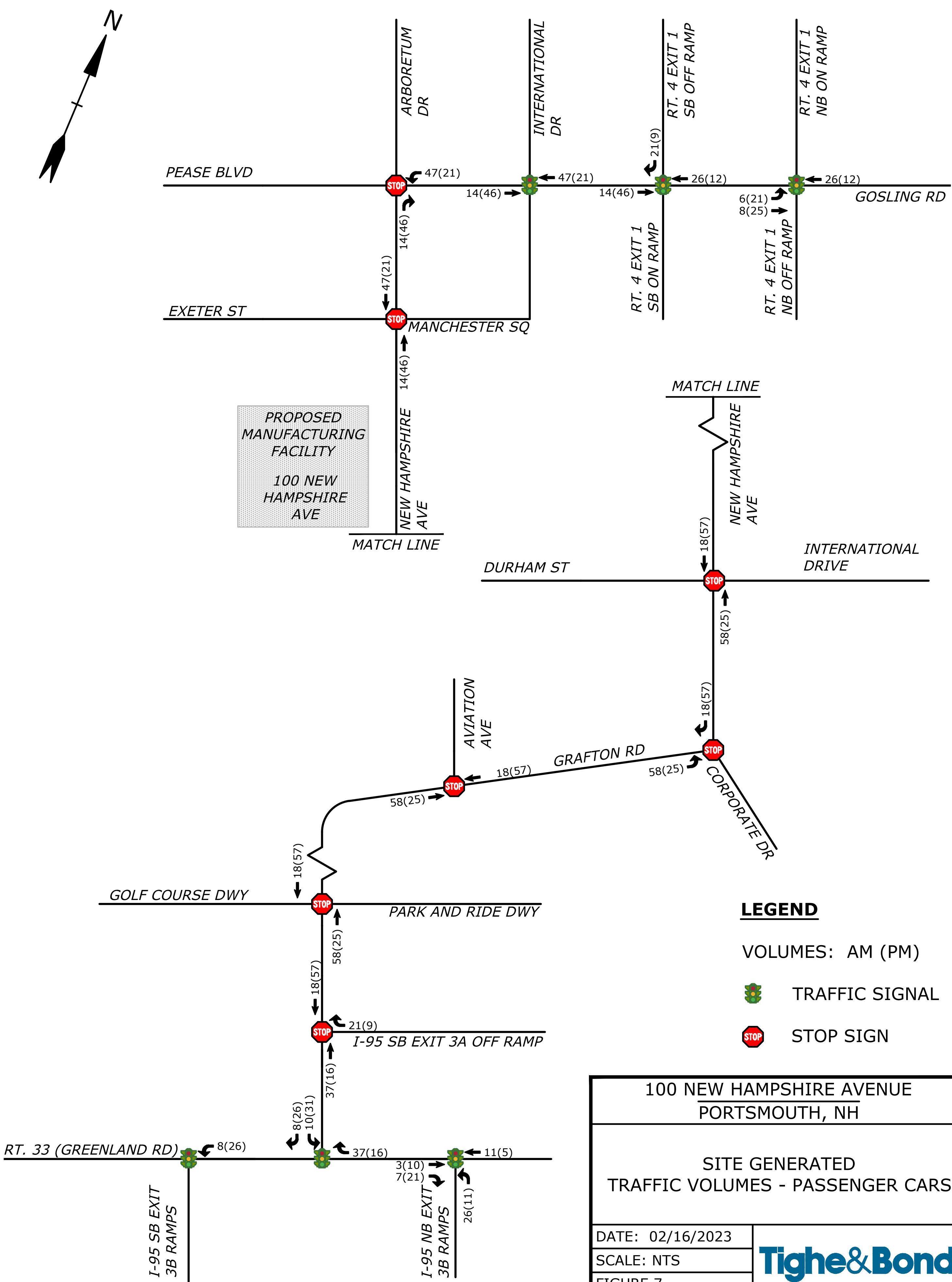


100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

ARRIVAL & DEPARTURE
TRIP DISTRIBUTION - TRUCKS

DATE: 02/16/2023
SCALE: NTS
FIGURE 6

Tighe&Bond

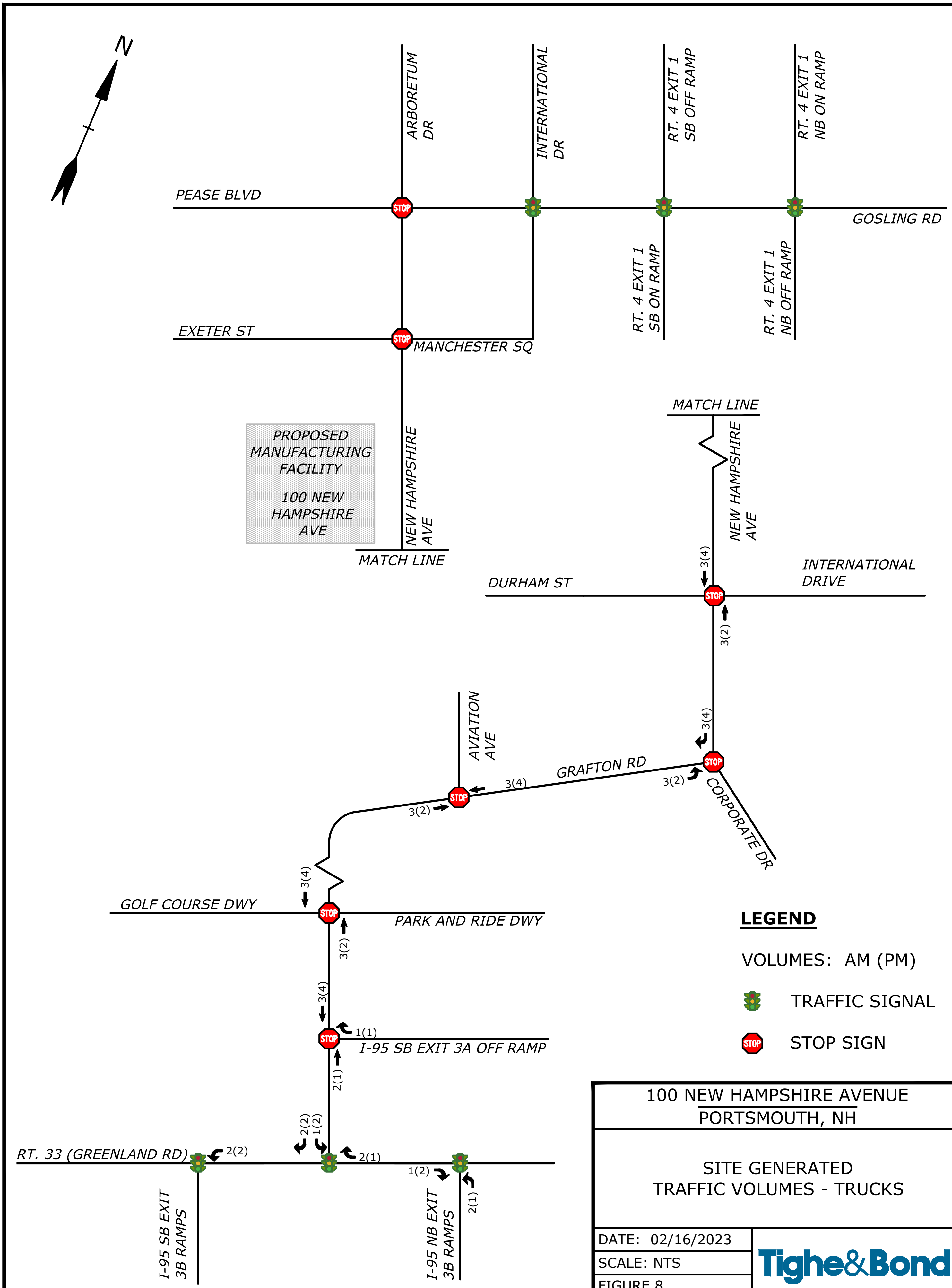


100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

SITE GENERATED
TRAFFIC VOLUMES - PASSENGER CARS

DATE: 02/16/2023
SCALE: NTS
FIGURE 7

Tighe&Bond

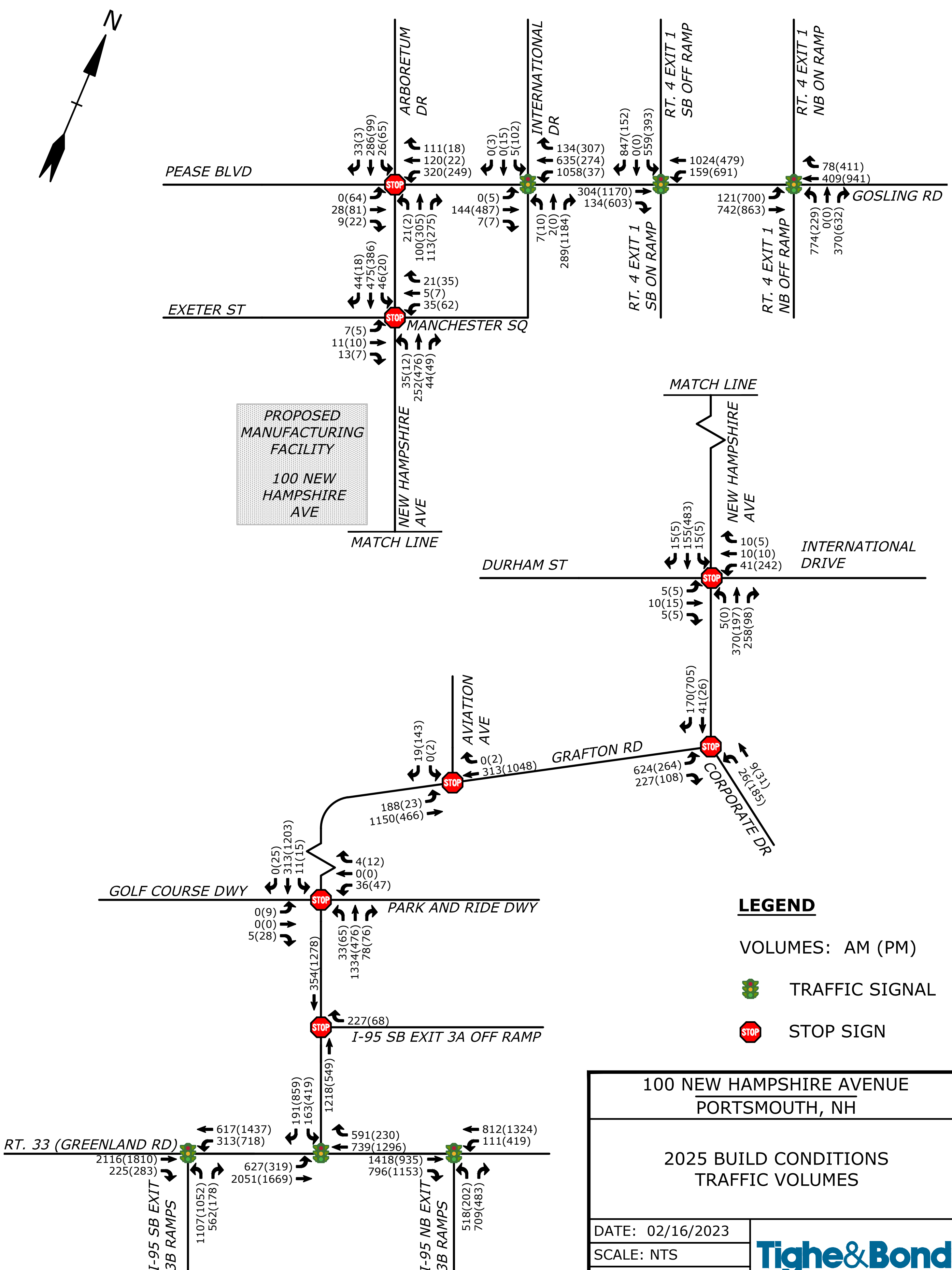


100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

SITE GENERATED
TRAFFIC VOLUMES - TRUCKS

DATE: 02/16/2023
SCALE: NTS
FIGURE 8

Feb 16, 2023-9:10am Plotted By: RCase
Tighe & Bond, Inc. \\tighebond.com\data\Data\Projects\P\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Figures\Traffic Volume Figures.dwg

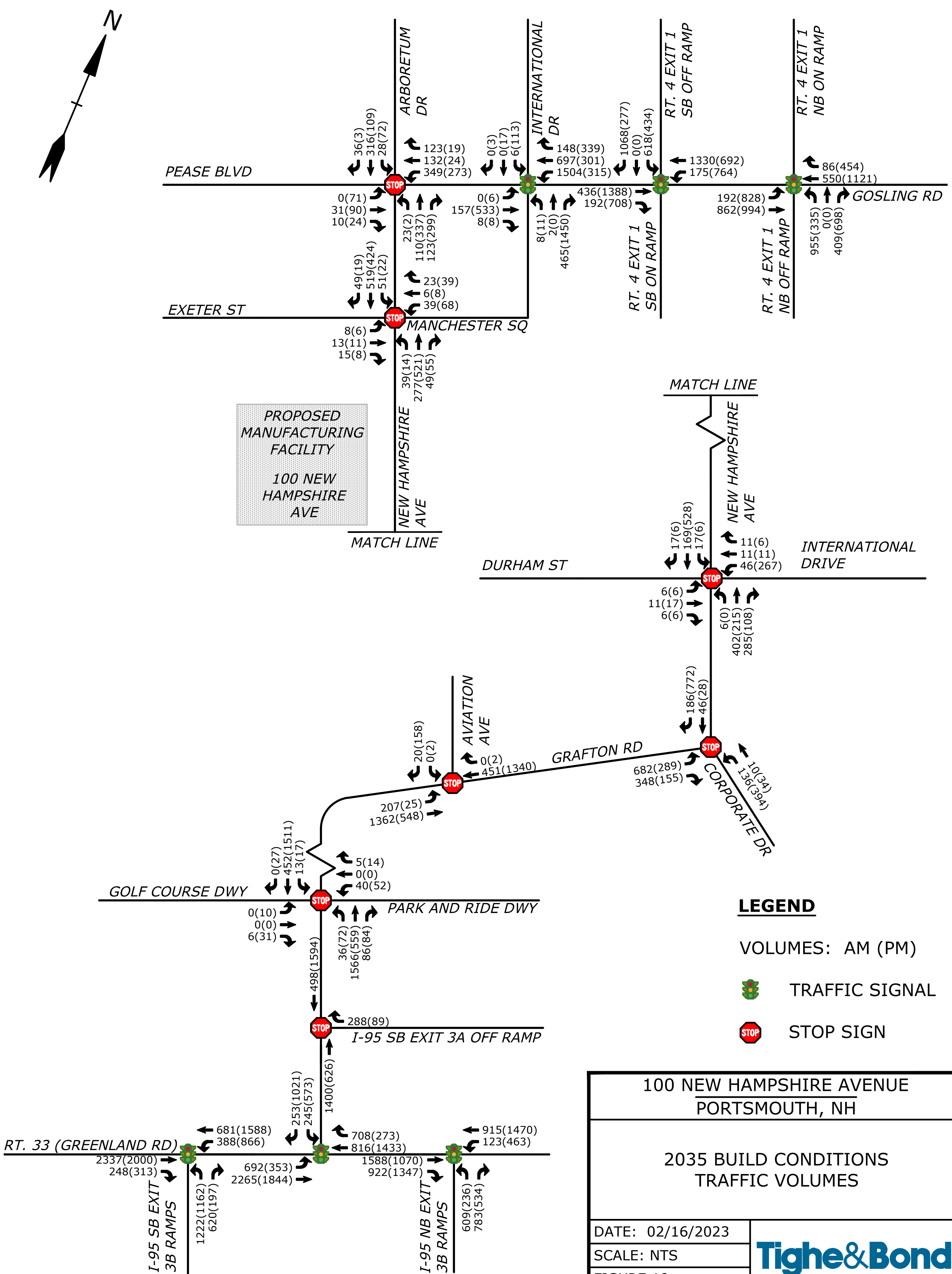


100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

2025 BUILD CONDITIONS
TRAFFIC VOLUMES

DATE: 02/16/2023
SCALE: NTS
FIGURE 9

Tighe&Bond



100 NEW HAMPSHIRE AVENUE
PORTSMOUTH, NH

2035 BUILD CONDITIONS
TRAFFIC VOLUMES

DATE: 02/16/2023
SCALE: NTS
FIGURE 10

Tighe&Bond

APPENDIX A
Traffic Count Data

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Newington Street
Street 2:	International Drive
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

BOSTON
TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

PASSENGER CARS & HEAVY VEHICLES COMBINED

	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	1	0	41	0	7	0	1	0	0	15	0	0	118	51	11
7:15 AM	0	2	1	27	0	4	0	1	0	0	8	1	0	125	54	15
7:30 AM	0	0	2	23	0	3	0	0	0	0	9	3	0	145	65	7
7:45 AM	0	1	0	33	0	0	0	0	0	0	18	1	0	196	115	16
8:00 AM	0	1	1	49	0	1	0	0	0	0	12	2	0	131	68	22
8:15 AM	0	0	0	35	0	1	0	0	0	0	15	0	0	125	63	15
8:30 AM	0	2	0	38	0	1	0	0	0	0	25	1	0	117	70	19
8:45 AM	0	1	0	43	0	0	0	0	0	1	20	0	0	104	72	8

	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	160	0	10	1	0	0	0	66	0	0	3	38	42
4:15 PM	0	1	0	155	0	11	4	0	0	1	59	0	0	3	30	44
4:30 PM	0	2	0	179	0	8	3	0	0	1	48	3	0	5	39	46
4:45 PM	0	1	0	164	0	18	1	2	0	0	51	0	0	6	37	53
5:00 PM	0	2	0	171	0	20	1	0	0	1	91	1	2	5	38	31
5:15 PM	0	1	0	115	0	9	1	0	0	0	53	0	1	1	34	43
5:30 PM	0	0	0	106	0	7	0	1	0	0	50	1	2	2	27	23
5:45 PM	0	0	0	83	0	7	0	0	0	0	44	1	0	1	32	40

AM PEAK HOUR 7:45 AM to 8:45 AM	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**4**	**1**	**155**	**0**	**3**	**0**	**0**	**0**	**0**	**70**	**4**	**0**	**569**	**316**	**72**
PHF	**0.78**				**0.75**				**0.71**				**0.73**			
HV %	**0.0%**	**25.0%**	**0.0%**	**3.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**4.3%**	**50.0%**	**0.0%**	**0.9%**	**1.6%**	**0.0%**

PM PEAK HOUR 4:15 PM to 5:15 PM	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**6**	**0**	**669**	**0**	**57**	**9**	**2**	**0**	**3**	**249**	**4**	**2**	**19**	**144**	**174**
PHF	**0.93**				**0.81**				**0.69**				**0.88**			
HV %	**0.0%**	**16.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**33.3%**	**2.0%**	**0.0%**	**0.0%**	**10.5%**	**1.4%**	**0.0%**

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Newington Street
Street 2:	International Drive
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

BOSTON
TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

HEAVY VEHICLES

	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0	0
7:30 AM	0	0	0	1	0	0	0	0	0	0	2	0	0	2	4	0
7:45 AM	0	0	0	3	0	0	0	0	0	0	1	1	0	1	2	0
8:00 AM	0	0	0	2	0	0	0	0	0	0	0	1	0	1	3	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	3	0	0
8:45 AM	0	0	0	3	0	0	0	0	0	0	4	0	0	1	2	0

	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	1	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**6**	**9**	**0**
PHF	**0.58**				**0.00**				**0.75**				**0.63**			

PM PEAK HOUR 4:00 PM to 5:00 PM	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**0**	**2**	**2**	**0**
PHF	**0.25**				**0.00**				**0.50**				**0.50**			

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 5
Location: Portsmouth, NH
Street 1: Newington Street
Street 2: International Drive
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1] 7:45 AM to 8:45 AM	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1] 4:15 PM to 5:15 PM	International Drive Northbound				International Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 6
Location: Portsmouth, NH
Street 1: Newington Street
Street 2: Route 4 Southbound On/Off-Ramps
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	38	0	91	0	0	41	21	0	15	81	0
7:15 AM	0	0	0	0	0	65	0	86	0	0	23	16	0	16	105	0
7:30 AM	0	0	0	0	0	73	0	104	0	0	17	16	1	22	113	0
7:45 AM	0	0	0	0	0	96	0	152	0	0	34	19	1	17	175	0
8:00 AM	0	0	0	0	0	61	0	94	0	0	47	15	1	21	121	0
8:15 AM	0	0	0	0	0	71	0	94	0	0	38	13	0	22	126	0
8:30 AM	0	0	0	0	0	59	0	77	0	0	43	21	0	18	121	0
8:45 AM	0	0	0	0	0	64	0	72	0	0	47	16	0	35	119	0

	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	66	0	14	0	0	129	89	2	81	63	0
4:15 PM	0	0	0	0	0	55	0	21	0	0	151	74	0	90	54	0
4:30 PM	0	0	0	0	0	57	0	27	0	0	162	73	0	99	68	0
4:45 PM	0	0	0	0	0	50	1	21	0	0	133	96	3	92	77	0
5:00 PM	0	0	0	0	0	59	0	11	0	0	187	99	0	103	62	0
5:15 PM	0	0	0	0	0	64	0	23	0	0	119	57	0	88	52	0
5:30 PM	0	0	0	0	0	55	0	16	0	0	96	67	1	94	39	0
5:45 PM	0	0	0	0	0	49	0	25	1	0	79	55	0	74	50	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**301**	**0**	**444**	**0**	**0**	**136**	**63**	**3**	**82**	**535**	**0**
PHF	**0.00**				**0.75**				**0.80**				**0.80**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.0%**	**0.0%**	**1.4%**	**0.0%**	**0.0%**	**2.2%**	**9.5%**	**0.0%**	**12.2%**	**1.3%**	**0.0%**

PM PEAK HOUR 4:15 PM to 5:15 PM	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**221**	**1**	**80**	**0**	**0**	**633**	**342**	**3**	**384**	**261**	**0**
PHF	**0.00**				**0.90**				**0.85**				**0.94**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.3%**	**0.0%**	**0.0%**	**0.5%**	**0.6%**	**0.0%**	**0.8%**	**1.1%**	**0.0%**

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Newington Street
Street 2:	Route 4 Southbound On/Off-Ramps
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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HEAVY VEHICLES

	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	1	0	0	0	0	1	1	0	2	2	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1	0
7:30 AM	0	0	0	0	0	0	0	3	0	0	0	3	0	6	3	0
7:45 AM	0	0	0	0	0	2	0	3	0	0	2	2	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	2	4	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	2	0	1	0	0	2	0	0	3	2	0
8:45 AM	0	0	0	0	0	0	0	1	0	0	5	2	0	2	3	0

	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**3**	**0**	**6**	**0**	**0**	**4**	**6**	**0**	**10**	**8**	**0**
PHF	**0.00**				**0.45**				**0.63**				**0.50**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**3**	**0**	**5**	**3**	**0**
PHF	**0.00**				**0.25**				**0.63**				**0.50**			

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 6
Location: Portsmouth, NH
Street 1: Newington Street
Street 2: Route 4 Southbound On/Off-Ramps
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1] 7:30 AM to 8:30 AM	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3

PM PEAK HOUR[1] 4:15 PM to 5:15 PM	Route 4 Southbound On-Ramp Northbound				Route 4 Southbound Off-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 7
Location: Portsmouth, NH
Street 1: Newington Street
Street 2: Route 4 Northbound On/Off-Ramps
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Route 4 Northbound Off-Ramp				Route 4 Northbound On-Ramp				Newington Street				Newington Street			
	Northbound				Southbound				Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	68	0	38	0	0	0	0	0	24	56	0	0	0	27	10
7:15 AM	0	76	0	47	0	0	0	0	0	17	72	0	0	0	46	9
7:30 AM	0	71	0	47	0	0	0	0	0	4	85	0	0	0	70	12
7:45 AM	0	130	0	66	0	0	0	0	0	18	111	0	0	0	59	14
8:00 AM	0	94	0	53	0	0	0	0	0	16	91	0	0	0	48	9
8:15 AM	0	98	0	39	0	0	0	0	0	12	97	0	0	0	47	10
8:30 AM	0	94	0	41	0	0	0	0	0	15	87	0	0	0	52	9
8:45 AM	0	85	0	55	0	0	0	0	0	16	95	0	0	0	64	13

	Route 4 Northbound Off-Ramp				Route 4 Northbound On-Ramp				Newington Street				Newington Street			
	Northbound				Southbound				Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	29	0	86	0	0	0	0	0	79	118	0	0	0	111	51
4:15 PM	0	28	1	94	0	0	0	0	0	89	117	0	0	0	122	51
4:30 PM	0	30	0	89	0	0	0	0	0	89	120	0	0	0	140	72
4:45 PM	0	36	0	94	0	0	0	0	0	91	108	0	0	0	130	44
5:00 PM	0	36	0	80	0	0	0	0	0	116	130	0	0	0	135	66
5:15 PM	0	24	0	94	0	0	0	0	0	72	108	0	0	0	117	63
5:30 PM	0	16	0	92	0	0	0	0	0	57	91	0	0	0	114	57
5:45 PM	0	24	0	73	0	0	0	0	0	45	80	0	0	0	100	52

AM PEAK HOUR	Route 4 Northbound Off-Ramp				Route 4 Northbound On-Ramp				Newington Street				Newington Street			
7:45 AM	Northbound				Southbound				Eastbound				Westbound			
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
8:45 AM	**0**	**416**	**0**	**199**	**0**	**0**	**0**	**0**	**0**	**61**	**386**	**0**	**0**	**0**	**206**	**42**
PHF	**0.78**				**0.00**				**0.87**				**0.85**			
HV %	**0.0%**	**2.4%**	**0.0%**	**3.5%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**4.9%**	**1.6%**	**0.0%**	**0.0%**	**0.0%**	**2.4%**	**4.8%**

PM PEAK HOUR	Route 4 Northbound Off-Ramp				Route 4 Northbound On-Ramp				Newington Street				Newington Street			
4:15 PM	Northbound				Southbound				Eastbound				Westbound			
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
5:15 PM	**0**	**130**	**1**	**357**	**0**	**0**	**0**	**0**	**0**	**385**	**475**	**0**	**0**	**0**	**527**	**233**
PHF	**0.94**				**0.00**				**0.87**				**0.90**			
HV %	**0.0%**	**1.5%**	**0.0%**	**1.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.3%**	**0.4%**	**0.0%**	**0.0%**	**0.0%**	**0.8%**	**0.0%**

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 7
Location: Portsmouth, NH
Street 1: Newington Street
Street 2: Route 4 Northbound On/Off-Ramps
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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HEAVY VEHICLES

	Route 4 Northbound Off-Ramp Northbound				Route 4 Northbound On-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	2	0	5	0	0	0	0	0	0	1	0	0	0	2	0
7:15 AM	0	1	0	7	0	0	0	0	0	2	1	0	0	0	1	1
7:30 AM	0	3	0	1	0	0	0	0	0	0	0	0	0	0	8	0
7:45 AM	0	2	0	4	0	0	0	0	0	2	2	0	0	0	0	2
8:00 AM	0	5	0	1	0	0	0	0	0	0	1	0	0	0	2	0
8:15 AM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0
8:30 AM	0	3	0	1	0	0	0	0	0	1	2	0	0	0	2	0
8:45 AM	0	3	0	2	0	0	0	0	0	1	5	0	0	0	3	0

	Route 4 Northbound Off-Ramp Northbound				Route 4 Northbound On-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0
4:15 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:00 PM	0	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0

AM PEAK HOUR 7:00 AM to 8:00 AM	Route 4 Northbound Off-Ramp Northbound				Route 4 Northbound On-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**8**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**0**	**0**	**0**	**11**	**3**
PHF	**0.78**				**0.00**				**0.50**				**0.44**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Route 4 Northbound Off-Ramp Northbound				Route 4 Northbound On-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**6**	**0**
PHF	**0.42**				**0.00**				**0.25**				**0.50**			

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 7
Location:	Portsmouth, NH
Street 1:	Newington Street
Street 2:	Route 4 Northbound On/Off-Ramps
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	Route 4 Northbound Off-Ramp Northbound				Route 4 Northbound On-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

	Route 4 Northbound Off-Ramp Northbound				Route 4 Northbound On-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1]	Route 4 Northbound Off-Ramp Northbound				Route 4 Northbound On-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
7:45 AM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0

PM PEAK HOUR[1]	Route 4 Northbound Off-Ramp Northbound				Route 4 Northbound On-Ramp Southbound				Newington Street Eastbound				Newington Street Westbound			
4:15 PM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 13
Location:	Portsmouth, NH
Street 1:	Greenland Road (Route 33)
Street 2:	I-95 Southbound On/Off-Ramps
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	79	0	24	0	0	0	0	0	0	172	21	0	37	54	0
7:15 AM	0	112	0	35	0	0	0	0	0	0	236	34	0	27	57	0
7:30 AM	0	149	0	89	0	0	0	0	0	0	258	23	0	38	69	0
7:45 AM	0	151	0	101	0	0	0	0	0	0	293	30	0	33	67	0
8:00 AM	0	133	0	56	0	0	0	0	0	0	256	21	0	52	92	0
8:15 AM	0	162	0	40	0	0	0	0	0	0	270	47	0	31	86	0
8:30 AM	0	135	0	36	0	0	0	0	0	0	223	33	0	40	84	0
8:45 AM	0	123	0	36	0	0	0	0	0	0	220	29	0	35	73	0

	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	154	0	29	0	0	0	0	0	0	238	41	0	110	194	0
4:15 PM	0	170	0	25	0	0	0	0	0	0	254	39	0	85	180	0
4:30 PM	0	134	0	31	0	0	0	0	0	0	256	32	0	99	182	0
4:45 PM	0	147	0	23	0	0	0	0	0	0	212	37	0	81	182	0
5:00 PM	0	146	0	15	0	0	0	0	0	0	236	53	0	109	234	0
5:15 PM	0	139	0	17	0	0	0	0	0	0	223	30	0	105	146	0
5:30 PM	0	107	0	15	0	0	0	0	0	0	154	33	0	71	154	0
5:45 PM	0	107	0	12	0	0	0	0	0	0	155	34	0	43	128	0

AM PEAK HOUR 7:30 AM to 8:30 AM	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**595**	**0**	**286**	**0**	**0**	**0**	**0**	**0**	**0**	**1077**	**121**	**0**	**154**	**314**	**0**
PHF	**0.87**				**0.00**				**0.93**				**0.81**			
HV %	**0.0%**	**5.9%**	**0.0%**	**1.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**3.8%**	**27.3%**	**0.0%**	**8.4%**	**7.3%**	**0.0%**

PM PEAK HOUR 4:15 PM to 5:15 PM	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**597**	**0**	**94**	**0**	**0**	**0**	**0**	**0**	**0**	**958**	**161**	**0**	**374**	**778**	**0**
PHF	**0.89**				**0.00**				**0.95**				**0.84**			
HV %	**0.0%**	**4.4%**	**0.0%**	**7.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.8%**	**18.0%**	**0.0%**	**1.9%**	**1.8%**	**0.0%**

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 13
Location:	Portsmouth, NH
Street 1:	Greenland Road (Route 33)
Street 2:	I-95 Southbound On/Off-Ramps
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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HEAVY VEHICLES

	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	7	0	0	0	0	0	0	0	0	7	10	0	4	4	0
7:15 AM	0	8	0	0	0	0	0	0	0	0	7	5	0	0	7	0
7:30 AM	0	6	0	1	0	0	0	0	0	0	11	5	0	2	2	0
7:45 AM	0	9	0	1	0	0	0	0	0	0	12	8	0	5	7	0
8:00 AM	0	12	0	0	0	0	0	0	0	0	9	6	0	5	4	0
8:15 AM	0	8	0	1	0	0	0	0	0	0	9	14	0	1	10	0
8:30 AM	0	12	0	1	0	0	0	0	0	0	15	6	0	2	4	0
8:45 AM	0	12	0	0	0	0	0	0	0	0	10	8	0	4	6	0

	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	10	0	3	0	0	0	0	0	0	2	2	0	3	10	0
4:15 PM	0	6	0	2	0	0	0	0	0	0	5	7	0	0	2	0
4:30 PM	0	7	0	2	0	0	0	0	0	0	6	10	0	3	5	0
4:45 PM	0	6	0	1	0	0	0	0	0	0	2	5	0	1	4	0
5:00 PM	0	7	0	2	0	0	0	0	0	0	4	7	0	3	3	0
5:15 PM	0	11	0	2	0	0	0	0	0	0	4	4	0	2	4	0
5:30 PM	0	8	0	0	0	0	0	0	0	0	4	3	0	2	6	0
5:45 PM	0	7	0	0	0	0	0	0	0	0	5	8	0	2	3	0

AM PEAK HOUR 7:45 AM to 8:45 AM	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**41**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**45**	**34**	**0**	**13**	**25**	**0**
PHF	**0.85**				**0.00**				**0.86**				**0.79**			

PM PEAK HOUR 4:30 PM to 5:30 PM	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**31**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**26**	**0**	**9**	**16**	**0**
PHF	**0.73**				**0.00**				**0.66**				**0.78**			

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 13
Location:	Portsmouth, NH
Street 1:	Greenland Road (Route 33)
Street 2:	I-95 Southbound On/Off-Ramps
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1]	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
7:30 AM to 8:30 AM	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1]	I-95 Southbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
4:15 PM to 5:15 PM	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 12
Location:	Portsmouth, NH
Street 1:	Grafton Road
Street 2:	Greenland Road (Route 33)
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

					Grafton Road				Greenland Road (Route 33)				Greenland Road (Route 33)			
	Northbound				Southbound				Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	8	0	25	0	52	142	0	0	0	67	26
7:15 AM	0	0	0	0	0	19	0	12	0	53	222	0	0	0	82	39
7:30 AM	0	0	0	0	0	12	0	19	0	68	305	0	0	0	90	70
7:45 AM	0	0	0	0	0	18	0	19	0	128	292	0	0	0	82	99
8:00 AM	0	0	0	0	0	20	0	36	0	74	269	0	0	0	117	59
8:15 AM	0	0	0	0	0	28	0	19	0	67	236	0	0	0	108	69
8:30 AM	0	0	0	0	0	14	0	25	0	80	209	0	0	0	97	57
8:45 AM	0	0	0	0	0	15	0	29	0	73	204	0	0	0	84	64

					Grafton Road				Greenland Road (Route 33)				Greenland Road (Route 33)			
	Northbound				Southbound				Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	63	0	122	0	32	247	0	0	0	207	43
4:15 PM	0	0	0	0	0	36	0	102	0	37	225	0	0	0	154	37
4:30 PM	0	0	0	0	0	60	0	123	0	45	265	0	0	0	179	33
4:45 PM	0	0	0	0	0	50	0	104	0	46	207	0	0	0	178	22
5:00 PM	0	0	0	0	0	58	0	140	0	34	237	0	0	0	205	18
5:15 PM	0	0	0	0	0	51	0	104	0	23	238	0	0	0	173	26
5:30 PM	0	0	0	0	0	39	0	103	0	31	185	0	0	0	145	23
5:45 PM	0	0	0	0	0	25	0	63	0	29	216	0	0	0	117	27

AM PEAK HOUR					Grafton Road				Greenland Road (Route 33)				Greenland Road (Route 33)			
7:30 AM	Northbound				Southbound				Eastbound				Westbound			
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
8:30 AM	**0**	**0**	**0**	**0**	**0**	**78**	**0**	**93**	**0**	**337**	**1102**	**0**	**0**	**0**	**397**	**297**
PHF	**0.00**				**0.76**				**0.86**				**0.96**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**5.1%**	**0.0%**	**5.4%**	**0.0%**	**0.3%**	**4.1%**	**0.0%**	**0.0%**	**0.0%**	**8.3%**	**1.7%**

PM PEAK HOUR					Grafton Road				Greenland Road (Route 33)				Greenland Road (Route 33)			
4:30 PM	Northbound				Southbound				Eastbound				Westbound			
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
5:30 PM	**0**	**0**	**0**	**0**	**0**	**219**	**0**	**471**	**0**	**148**	**947**	**0**	**0**	**0**	**735**	**99**
PHF	**0.00**				**0.87**				**0.88**				**0.93**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.4%**	**0.0%**	**1.3%**	**0.0%**	**0.7%**	**2.1%**	**0.0%**	**0.0%**	**0.0%**	**2.4%**	**2.0%**

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 12
Location: Portsmouth, NH
Street 1: Grafton Road
Street 2: Greenland Road (Route 33)
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

BOSTON
TRAFFIC DATA
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HEAVY VEHICLES

	Northbound				Grafton Road Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	4	0	0	7	0	0	0	6	1
7:15 AM	0	0	0	0	0	2	0	0	0	1	4	0	0	0	6	4
7:30 AM	0	0	0	0	0	1	0	2	0	0	13	0	0	0	4	1
7:45 AM	0	0	0	0	0	1	0	1	0	1	12	0	0	0	10	0
8:00 AM	0	0	0	0	0	0	0	2	0	0	8	0	0	0	8	1
8:15 AM	0	0	0	0	0	2	0	0	0	0	12	0	0	0	11	3
8:30 AM	0	0	0	0	0	0	0	1	0	2	14	0	0	0	5	3
8:45 AM	0	0	0	0	0	0	0	1	0	1	9	0	0	0	9	2

	Northbound				Grafton Road Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	1	0	0	6	0	0	0	12	0
4:15 PM	0	0	0	0	0	2	0	0	0	0	6	0	0	0	2	2
4:30 PM	0	0	0	0	0	1	0	3	0	1	5	0	0	0	5	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	3	0	0	0	4	1
5:00 PM	0	0	0	0	0	0	0	2	0	0	7	0	0	0	4	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	5	0	0	0	5	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	9	1
5:45 PM	0	0	0	0	0	0	0	2	0	0	5	0	0	0	2	2

AM PEAK HOUR	Northbound				Grafton Road Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
7:45 AM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
8:45 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**4**	**0**	**3**	**46**	**0**	**0**	**0**	**34**	**7**
PHF	**0.00**				**0.88**				**0.77**				**0.73**			

PM PEAK HOUR	Northbound				Grafton Road Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
4:00 PM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
5:00 PM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**5**	**0**	**1**	**20**	**0**	**0**	**0**	**23**	**3**
PHF	**0.00**				**0.50**				**0.88**				**0.54**			

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 12
Location: Portsmouth, NH
Street 1: Grafton Road
Street 2: Greenland Road (Route 33)
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	Northbound				Grafton Road Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Northbound				Grafton Road Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1]	Northbound				Grafton Road Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
7:30 AM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1]	Northbound				Grafton Road Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
4:30 PM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1] NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 14
Location:	Portsmouth, NH
Street 1:	Greenland Road (Route 33)
Street 2:	I-95 Northbound On/Off-Ramps
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	I-95 Northbound Off-Ramp								Greenland Road (Route 33)				Greenland Road (Route 33)			
	Northbound				Southbound				Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	23	0	54	0	0	0	0	0	0	79	73	0	12	69	0
7:15 AM	0	39	0	89	0	0	0	0	0	0	119	111	0	11	79	0
7:30 AM	0	64	0	87	0	0	0	0	0	0	171	120	0	10	88	0
7:45 AM	0	80	0	119	0	0	0	0	0	0	212	90	0	19	103	0
8:00 AM	0	54	0	83	0	0	0	0	0	0	184	107	0	20	113	0
8:15 AM	0	58	0	92	0	0	0	0	0	0	173	95	0	11	114	0
8:30 AM	0	45	0	78	0	0	0	0	0	0	114	97	0	9	106	0
8:45 AM	0	54	0	62	0	0	0	0	0	0	132	92	0	23	92	0

	I-95 Northbound Off-Ramp								Greenland Road (Route 33)				Greenland Road (Route 33)			
	Northbound				Southbound				Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	24	0	58	0	0	0	0	0	0	120	185	0	47	222	0
4:15 PM	0	30	0	59	0	0	0	0	0	0	114	157	0	45	145	0
4:30 PM	0	29	0	64	0	0	0	0	0	0	147	175	0	58	181	0
4:45 PM	0	26	0	81	0	0	0	0	0	0	139	115	0	55	160	0
5:00 PM	0	25	0	55	0	0	0	0	0	0	115	166	0	75	201	0
5:15 PM	0	21	0	74	0	0	0	0	0	0	112	171	0	50	165	0
5:30 PM	0	30	0	45	0	0	0	0	0	0	81	100	0	39	145	0
5:45 PM	0	33	0	59	0	0	0	0	0	0	106	111	0	29	106	0

AM PEAK HOUR	I-95 Northbound Off-Ramp								Greenland Road (Route 33)				Greenland Road (Route 33)			
7:30 AM	Northbound				Southbound				Eastbound				Westbound			
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
8:30 AM	**0**	**256**	**0**	**381**	**0**	**0**	**0**	**0**	**0**	**0**	**740**	**412**	**0**	**60**	**418**	**0**
PHF	**0.80**				**0.00**				**0.95**				**0.90**			
HV %	**0.0%**	**10.9%**	**0.0%**	**4.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.8%**	**10.2%**	**0.0%**	**3.3%**	**4.5%**	**0.0%**

PM PEAK HOUR	I-95 Northbound Off-Ramp								Greenland Road (Route 33)				Greenland Road (Route 33)			
4:30 PM	Northbound				Southbound				Eastbound				Westbound			
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
5:30 PM	**0**	**101**	**0**	**274**	**0**	**0**	**0**	**0**	**0**	**0**	**513**	**627**	**0**	**238**	**707**	**0**
PHF	**0.88**				**0.00**				**0.89**				**0.86**			
HV %	**0.0%**	**13.9%**	**0.0%**	**2.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.9%**	**3.0%**	**0.0%**	**0.8%**	**2.1%**	**0.0%**

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 14
Location: Portsmouth, NH
Street 1: Greenland Road (Route 33)
Street 2: I-95 Northbound On/Off-Ramps
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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HEAVY VEHICLES

	I-95 Northbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	5	0	1	0	0	0	0	0	0	5	5	0	1	2	0
7:15 AM	0	8	0	3	0	0	0	0	0	0	2	5	0	2	2	0
7:30 AM	0	5	0	4	0	0	0	0	0	0	3	12	0	1	2	0
7:45 AM	0	7	0	6	0	0	0	0	0	0	5	9	0	0	7	0
8:00 AM	0	6	0	4	0	0	0	0	0	0	2	11	0	1	5	0
8:15 AM	0	10	0	4	0	0	0	0	0	0	3	10	0	0	5	0
8:30 AM	0	4	0	7	0	0	0	0	0	0	4	11	0	0	5	0
8:45 AM	0	8	0	4	0	0	0	0	0	0	4	7	0	1	5	0

	I-95 Northbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	5	0	1	0	0	0	0	0	0	2	7	0	0	6	0
4:15 PM	0	2	0	3	0	0	0	0	0	0	5	5	0	1	4	0
4:30 PM	0	4	0	0	0	0	0	0	0	0	3	5	0	0	3	0
4:45 PM	0	4	0	3	0	0	0	0	0	0	1	3	0	1	3	0
5:00 PM	0	3	0	2	0	0	0	0	0	0	3	5	0	1	4	0
5:15 PM	0	3	0	1	0	0	0	0	0	0	3	6	0	0	5	0
5:30 PM	0	6	0	0	0	0	0	0	0	0	1	3	0	0	4	0
5:45 PM	0	4	0	1	0	0	0	0	0	0	1	5	0	0	1	0

AM PEAK HOUR 7:45 AM to 8:45 AM	I-95 Northbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**27**	**0**	**21**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**41**	**0**	**1**	**22**	**0**
PHF	**0.86**				**0.00**				**0.92**				**0.82**			

PM PEAK HOUR 4:00 PM to 5:00 PM	I-95 Northbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**15**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**20**	**0**	**2**	**16**	**0**
PHF	**0.79**				**0.00**				**0.78**				**0.75**			

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 14
Location: Portsmouth, NH
Street 1: Greenland Road (Route 33)
Street 2: I-95 Northbound On/Off-Ramps
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	I-95 Northbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	I-95 Northbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1] 7:30 AM to 8:30 AM	I-95 Northbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1] 4:30 PM to 5:30 PM	I-95 Northbound Off-Ramp Northbound				Southbound				Greenland Road (Route 33) Eastbound				Greenland Road (Route 33) Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 4
Location: Newington, NH
Street 1: Newington Street
Street 2: Arboretum Dr/New Hampshire Ave
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	4	12	10	0	0	17	8	0	2	7	1	0	18	24	9
7:15 AM	0	3	9	7	0	3	23	7	0	1	1	1	0	25	19	9
7:30 AM	0	6	8	6	0	6	35	5	0	0	3	1	0	32	14	9
7:45 AM	0	6	12	16	0	4	57	5	0	0	2	1	0	55	27	15
8:00 AM	0	3	15	13	0	3	33	7	0	0	0	0	0	35	14	13
8:15 AM	0	2	19	11	0	3	34	4	0	0	6	1	0	21	14	13
8:30 AM	0	0	8	13	0	4	30	2	0	0	7	3	0	36	9	19
8:45 AM	0	5	8	14	0	3	27	3	0	0	1	1	0	40	6	12

	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	49	27	0	5	22	1	0	7	24	4	0	29	2	4
4:15 PM	0	0	37	37	0	6	21	0	0	12	16	5	0	30	0	1
4:30 PM	0	1	43	28	0	7	11	1	0	12	10	4	0	31	4	2
4:45 PM	0	0	35	22	0	11	16	0	0	8	9	2	0	31	5	6
5:00 PM	0	0	58	43	0	13	8	1	0	4	11	1	0	37	3	1
5:15 PM	0	1	31	22	0	12	14	0	0	1	2	1	0	28	2	6
5:30 PM	0	1	25	21	0	6	17	1	0	5	9	4	0	21	3	1
5:45 PM	0	9	12	25	0	7	11	0	0	4	9	4	0	22	11	2

AM PEAK HOUR 7:45 AM to 8:45 AM	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**11**	**54**	**53**	**0**	**14**	**154**	**18**	**0**	**0**	**15**	**5**	**0**	**147**	**64**	**60**
PHF	**0.87**				**0.70**				**0.50**				**0.70**			
HV %	**0.0%**	**0.0%**	**5.6%**	**7.5%**	**0.0%**	**14.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.0%**	**0.0%**	**5.0%**

PM PEAK HOUR 4:15 PM to 5:15 PM	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**1**	**173**	**130**	**0**	**37**	**56**	**2**	**0**	**36**	**46**	**12**	**0**	**129**	**12**	**10**
PHF	**0.75**				**0.88**				**0.71**				**0.90**			
HV %	**0.0%**	**0.0%**	**1.2%**	**3.1%**	**0.0%**	**10.8%**	**3.6%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.6%**	**0.0%**	**10.0%**

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 4
Location:	Newington, NH
Street 1:	Newington Street
Street 2:	Arboretum Dr/New Hampshire Ave
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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HEAVY VEHICLES

	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	3
7:45 AM	0	0	1	1	0	1	0	0	0	0	0	0	0	2	0	0
8:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	2
8:15 AM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	1	0	2	0	0	0	0	0	0	0	2	0	0

	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	1	2	0	2	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	2	0	0	1	0	0	0	0	0	0	1	0	0
4:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
5:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**3**	**3**	**0**	**4**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**5**
PHF	**0.50**				**0.42**				**0.00**				**0.56**			

PM PEAK HOUR 4:00 PM to 5:00 PM	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**2**	**4**	**0**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**
PHF	**0.50**				**0.50**				**0.00**				**0.75**			

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 4
Location: Newington, NH
Street 1: Newington Street
Street 2: Arboretum Dr/New Hampshire Ave
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1]	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
7:45 AM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1]	New Hampshire Avenue Northbound				Arboretum Drive Southbound				Newington Street Eastbound				Newington Street Westbound			
4:15 PM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 8
Location: Portsmouth, NH
Street 1: New Hampshire Avenue
Street 2: Exeter Street & Manchester Square
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	24	3	0	1	30	8	0	2	0	1	0	0	0	0
7:15 AM	0	1	27	5	0	3	42	1	0	1	0	1	0	1	1	1
7:30 AM	0	4	17	4	0	4	54	6	0	1	1	2	0	3	1	1
7:45 AM	0	6	39	9	0	9	91	5	0	0	2	1	0	5	1	4
8:00 AM	0	4	34	6	0	5	51	4	0	1	1	3	0	7	0	1
8:15 AM	0	5	29	4	0	4	38	5	0	1	0	2	0	3	1	3
8:30 AM	0	4	26	5	0	7	50	10	0	2	3	1	0	4	1	3
8:45 AM	0	11	25	5	0	4	52	8	0	2	3	3	0	3	9	3

	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	3	78	15	0	4	58	1	0	1	3	1	0	10	1	4
4:15 PM	0	1	54	5	0	3	53	4	0	1	0	2	0	9	2	6
4:30 PM	0	2	67	5	0	1	49	2	0	0	3	1	0	8	0	5
4:45 PM	0	1	45	3	0	3	47	3	0	1	0	0	0	8	1	5
5:00 PM	0	4	84	5	0	0	44	7	0	2	0	0	0	7	2	9
5:15 PM	0	6	43	3	0	1	43	2	0	1	1	3	0	5	5	2
5:30 PM	0	3	43	4	0	1	36	4	0	3	1	0	0	8	6	2
5:45 PM	0	3	36	1	0	0	32	9	0	1	1	1	0	4	1	0

AM PEAK HOUR	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
7:45 AM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
8:45 AM	**0**	**19**	**128**	**24**	**0**	**25**	**230**	**24**	**0**	**4**	**6**	**7**	**0**	**19**	**3**	**11**
PHF	**0.79**				**0.66**				**0.71**				**0.83**			
HV %	**0.0%**	**0.0%**	**3.9%**	**0.0%**	**0.0%**	**4.0%**	**0.9%**	**4.2%**	**0.0%**	**25.0%**	**0.0%**	**14.3%**	**0.0%**	**0.0%**	**33.3%**	**9.1%**

PM PEAK HOUR	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
4:00 PM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
5:00 PM	**0**	**7**	**244**	**28**	**0**	**11**	**207**	**10**	**0**	**3**	**6**	**4**	**0**	**35**	**4**	**20**
PHF	**0.73**				**0.90**				**0.65**				**0.87**			
HV %	**0.0%**	**0.0%**	**2.5%**	**0.0%**	**0.0%**	**0.0%**	**1.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**25.0%**	**0.0%**	**2.9%**	**25.0%**	**0.0%**

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 8
Location:	Portsmouth, NH
Street 1:	New Hampshire Avenue
Street 2:	Exeter Street & Manchester Square
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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HEAVY VEHICLES

	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0
7:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1
8:30 AM	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0
8:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0

	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	3	0	0	0	1	0	0	0	0	1	0	0	1	0
4:30 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:45 AM to 8:45 AM	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**5**	**0**	**0**	**1**	**2**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**1**
PHF	**0.63**				**0.50**				**0.50**				**0.25**			

PM PEAK HOUR 4:00 PM to 5:00 PM	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**6**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**
PHF	**0.50**				**0.38**				**0.25**				**0.50**			

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 8
Location:	Portsmouth, NH
Street 1:	New Hampshire Avenue
Street 2:	Exeter Street & Manchester Square
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1]	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
7:45 AM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1]	New Hampshire Avenue Northbound				New Hampshire Avenue Southbound				Exeter Street Eastbound				Manchester Square Westbound			
4:00 PM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 9
Location: Portsmouth, NH
Street 1: Grafton Road
Street 2: Aviation Avenue
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Northbound				Aviation Avenue Southbound				Grafton Road Eastbound				Grafton Road Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	3	0	7	81	0	0	0	23	0
7:15 AM	0	0	0	0	0	0	0	4	0	18	80	0	0	0	25	0
7:30 AM	0	0	0	0	0	0	0	2	0	16	108	0	0	0	24	0
7:45 AM	0	0	0	0	0	0	0	0	0	43	204	0	0	0	39	0
8:00 AM	0	0	0	0	0	0	0	4	0	21	127	0	0	0	52	0
8:15 AM	0	0	0	0	0	0	0	5	0	17	122	0	0	0	31	0
8:30 AM	0	0	0	0	0	0	0	1	0	20	108	0	0	0	35	0
8:45 AM	0	0	0	0	0	0	0	0	0	15	139	0	0	0	30	0

	Northbound				Aviation Avenue Southbound				Grafton Road Eastbound				Grafton Road Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	33	0	5	65	0	0	0	129	0
4:15 PM	0	0	0	0	0	0	0	9	0	2	63	0	0	0	123	0
4:30 PM	0	0	0	0	0	0	0	30	0	2	75	0	0	0	149	0
4:45 PM	0	0	0	0	0	1	0	13	0	4	67	0	0	0	131	0
5:00 PM	0	0	0	0	0	0	0	29	0	5	44	0	0	0	157	1
5:15 PM	0	0	0	0	0	0	0	20	0	4	42	0	0	0	116	0
5:30 PM	0	0	0	0	0	0	0	13	0	3	38	0	0	0	104	0
5:45 PM	0	0	0	0	0	0	0	5	0	1	43	0	0	0	64	0

AM PEAK HOUR 7:45 AM to 8:45 AM	Northbound				Aviation Avenue Southbound				Grafton Road Eastbound				Grafton Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**101**	**561**	**0**	**0**	**0**	**157**	**0**
PHF	**0.00**				**0.50**				**0.67**				**0.75**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.0%**	**1.8%**	**0.0%**	**0.0%**	**0.0%**	**1.9%**	**0.0%**

PM PEAK HOUR 4:15 PM to 5:15 PM	Northbound				Aviation Avenue Southbound				Grafton Road Eastbound				Grafton Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**1**	**0**	**81**	**0**	**13**	**249**	**0**	**0**	**0**	**560**	**1**
PHF	**0.00**				**0.68**				**0.85**				**0.89**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.2%**	**0.0%**	**0.0%**	**1.2%**	**0.0%**	**0.0%**	**0.0%**	**0.9%**	**0.0%**

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 9
Location: Portsmouth, NH
Street 1: Grafton Road
Street 2: Aviation Avenue
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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HEAVY VEHICLES

					Aviation Avenue				Grafton Road				Grafton Road			
	Northbound				Southbound				Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	2	0	1	0	0	0	0	2	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	1	3	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0
8:45 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	2	0

					Aviation Avenue				Grafton Road				Grafton Road			
	Northbound				Southbound				Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	0	0	3	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0

AM PEAK HOUR					Aviation Avenue				Grafton Road				Grafton Road			
8:00 AM	Northbound				Southbound				Eastbound				Westbound			
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
9:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**11**	**0**	**0**	**0**	**5**	**0**
PHF	**0.00**				**0.00**				**0.65**				**0.63**			

PM PEAK HOUR					Aviation Avenue				Grafton Road				Grafton Road			
4:00 PM	Northbound				Southbound				Eastbound				Westbound			
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**6**	**0**
PHF	**0.00**				**0.25**				**0.50**				**0.50**			

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 9
Location:	Portsmouth, NH
Street 1:	Grafton Road
Street 2:	Aviation Avenue
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	Northbound				Aviation Avenue Southbound				Grafton Road Eastbound				Grafton Road Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0

	Northbound				Aviation Avenue Southbound				Grafton Road Eastbound				Grafton Road Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1] 7:45 AM to 8:45 AM	Northbound				Aviation Avenue Southbound				Grafton Road Eastbound				Grafton Road Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0

PM PEAK HOUR[1] 4:15 PM to 5:15 PM	Northbound				Aviation Avenue Southbound				Grafton Road Eastbound				Grafton Road Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	1	2	0	1	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 10
Location: Portsmouth, NH
Street 1: Grafton Road
Street 2: P. Golf Course Dr/Park & Ride Dr
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	85	3	0	1	26	0	0	0	0	0	0	5	0	2
7:15 AM	0	3	96	13	0	2	24	2	0	1	0	0	0	6	0	2
7:30 AM	0	8	141	13	0	0	25	0	0	0	0	2	0	7	0	0
7:45 AM	0	5	241	9	0	1	31	0	0	0	0	0	0	3	0	1
8:00 AM	0	2	148	4	0	2	53	0	0	0	0	0	0	1	0	1
8:15 AM	0	2	140	15	0	3	38	0	0	0	0	1	0	7	0	0
8:30 AM	0	4	141	12	0	2	31	0	0	0	0	3	0	2	0	1
8:45 AM	0	5	148	8	0	0	35	0	0	0	0	2	0	4	0	0

	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	15	66	8	0	1	163	5	0	2	0	6	0	7	0	3
4:15 PM	0	6	61	12	0	3	131	2	0	2	0	3	0	7	0	1
4:30 PM	0	11	63	12	0	1	174	5	0	1	0	1	0	5	0	2
4:45 PM	0	5	64	11	0	4	151	2	0	0	0	5	0	7	0	1
5:00 PM	0	2	46	11	0	0	183	2	0	1	0	2	0	14	0	5
5:15 PM	0	5	43	5	0	3	135	6	0	1	0	6	0	9	0	2
5:30 PM	0	4	42	15	0	0	127	0	0	1	0	5	0	2	0	1
5:45 PM	0	6	45	13	0	1	79	1	0	2	0	4	0	11	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**17**	**670**	**41**	**0**	**6**	**147**	**0**	**0**	**0**	**0**	**3**	**0**	**18**	**0**	**2**
PHF	**0.71**				**0.70**				**0.38**				**0.71**			
HV %	**0.0%**	**5.9%**	**1.2%**	**7.3%**	**0.0%**	**16.7%**	**3.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**33.3%**	**0.0%**	**16.7%**	**0.0%**	**50.0%**

PM PEAK HOUR 4:00 PM to 5:00 PM	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**37**	**254**	**43**	**0**	**9**	**619**	**14**	**0**	**5**	**0**	**15**	**0**	**26**	**0**	**7**
PHF	**0.94**				**0.89**				**0.63**				**0.83**			
HV %	**0.0%**	**0.0%**	**1.2%**	**11.6%**	**0.0%**	**22.2%**	**0.8%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**11.5%**	**0.0%**	**28.6%**

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 10
Location:	Portsmouth, NH
Street 1:	Grafton Road
Street 2:	P. Golf Course Dr/Park & Ride Dr
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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HEAVY VEHICLES

	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	2	1	0	0	2	0	0	0	0	0	0	2	0	1
7:15 AM	0	0	3	2	0	2	0	0	0	0	0	0	0	2	0	0
7:30 AM	0	1	1	0	0	0	4	0	0	0	0	1	0	0	0	0
7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	4	1	0	0	1	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	2	2	0	1	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	3	1	0	0	1	0	0	0	0	0	0	0	0	0

	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM	0	0	0	2	0	1	0	0	0	0	0	0	0	2	0	0
4:30 PM	0	0	2	1	0	0	4	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	1
5:15 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	2	0	0
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	3	0	1	2	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 8:00 AM to 9:00 AM	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**14**	**4**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**
PHF	**0.90**				**1.00**				**0.00**				**0.50**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**3**	**5**	**0**	**2**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**2**
PHF	**0.67**				**0.44**				**0.00**				**0.63**			

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 10
Location:	Portsmouth, NH
Street 1:	Grafton Road
Street 2:	P. Golf Course Dr/Park & Ride Dr
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1]	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
7:30 AM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0

PM PEAK HOUR[1]	Grafton Road Northbound				Grafton Road Southbound				Pease Golf Course Driveway Eastbound				Park & Ride Driveway Westbound			
4:00 PM to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
5:00 PM	0	1	0	0	0	1	0	1	0	0	0	2	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 11
Location:	Portsmouth, NH
Street 1:	Grafton Road
Street 2:	I-95 Southbound Off-Ramp
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	78	0	0	0	33	0	0	0	0	0	0	0	0	7
7:15 AM	0	0	92	0	0	0	31	0	0	0	0	0	0	0	0	26
7:30 AM	0	0	138	0	0	0	31	0	0	0	0	0	0	0	0	26
7:45 AM	0	0	227	0	0	0	37	0	0	0	0	0	0	0	0	36
8:00 AM	0	0	133	0	0	0	56	0	0	0	0	0	0	0	0	23
8:15 AM	0	0	136	0	0	0	47	0	0	0	0	0	0	0	0	23
8:30 AM	0	0	137	0	0	0	39	0	0	0	0	0	0	0	0	28
8:45 AM	0	0	137	0	0	0	44	0	0	0	0	0	0	0	0	24

	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	75	0	0	0	185	0	0	0	0	0	0	0	0	11
4:15 PM	0	0	74	0	0	0	138	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	78	0	0	0	183	0	0	0	0	0	0	0	0	11
4:45 PM	0	0	68	0	0	0	154	0	0	0	0	0	0	0	0	8
5:00 PM	0	0	52	0	0	0	198	0	0	0	0	0	0	0	0	6
5:15 PM	0	0	49	0	0	0	155	0	0	0	0	0	0	0	0	6
5:30 PM	0	0	54	0	0	0	142	0	0	0	0	0	0	0	0	12
5:45 PM	0	0	56	0	0	0	88	0	0	0	0	0	0	0	0	8

AM PEAK HOUR 7:45 AM to 8:45 AM	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**633**	**0**	**0**	**0**	**179**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**110**
PHF	**0.70**				**0.80**				**0.00**				**0.76**			
HV %	**0.0%**	**0.0%**	**1.6%**	**0.0%**	**0.0%**	**0.0%**	**3.9%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.7%**

PM PEAK HOUR 4:00 PM to 5:00 PM	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**295**	**0**	**0**	**0**	**660**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**32**
PHF	**0.95**				**0.89**				**0.00**				**0.73**			
HV %	**0.0%**	**0.0%**	**1.4%**	**0.0%**	**0.0%**	**0.0%**	**1.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**12.5%**

Client: Matthew Stoutz, PE, PTOE, RSP1
Project #: 856_010_TB
BTD #: Location 11
Location: Portsmouth, NH
Street 1: Grafton Road
Street 2: I-95 Southbound Off-Ramp
Count Date: 2/17/2022
Day of Week: Thursday
Weather: Cloudy, 55°F

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HEAVY VEHICLES

	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	1

	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**8**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
PHF	**0.40**				**0.69**				**0.00**				**0.38**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**4**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
PHF	**0.50**				**0.50**				**0.00**				**0.50**			

Client:	Matthew Stoutz, PE, PTOE, RSP1
Project #:	856_010_TB
BTD #:	Location 11
Location:	Portsmouth, NH
Street 1:	Grafton Road
Street 2:	I-95 Southbound Off-Ramp
Count Date:	2/17/2022
Day of Week:	Thursday
Weather:	Cloudy, 55°F

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PEDESTRIANS & BICYCLES

	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

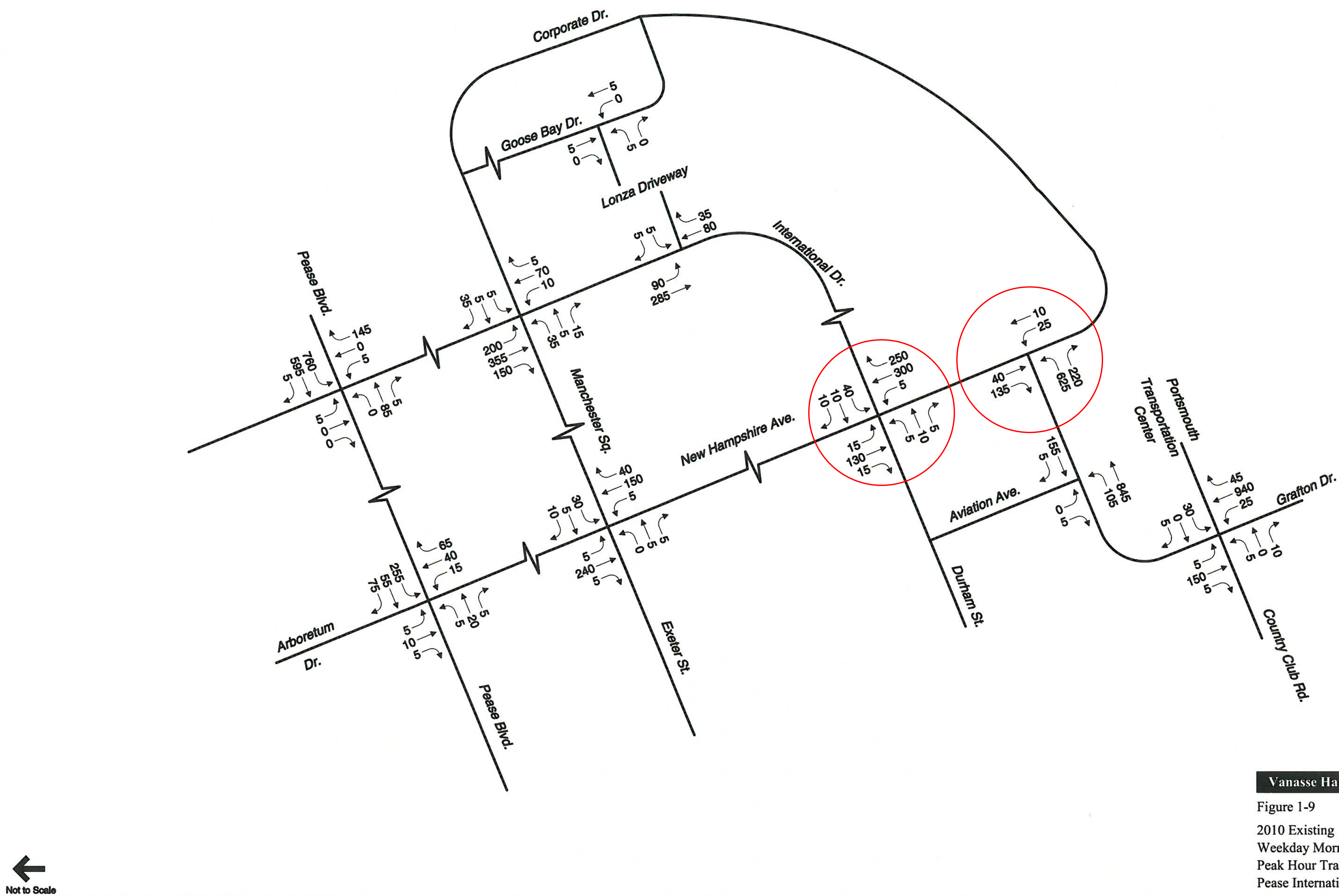
	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1] 7:45 AM to 8:45 AM	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1] 4:00 PM to 5:00 PM	Grafton Road Northbound				Grafton Road Southbound				Eastbound				I-95 Southbound Off-Ramp Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

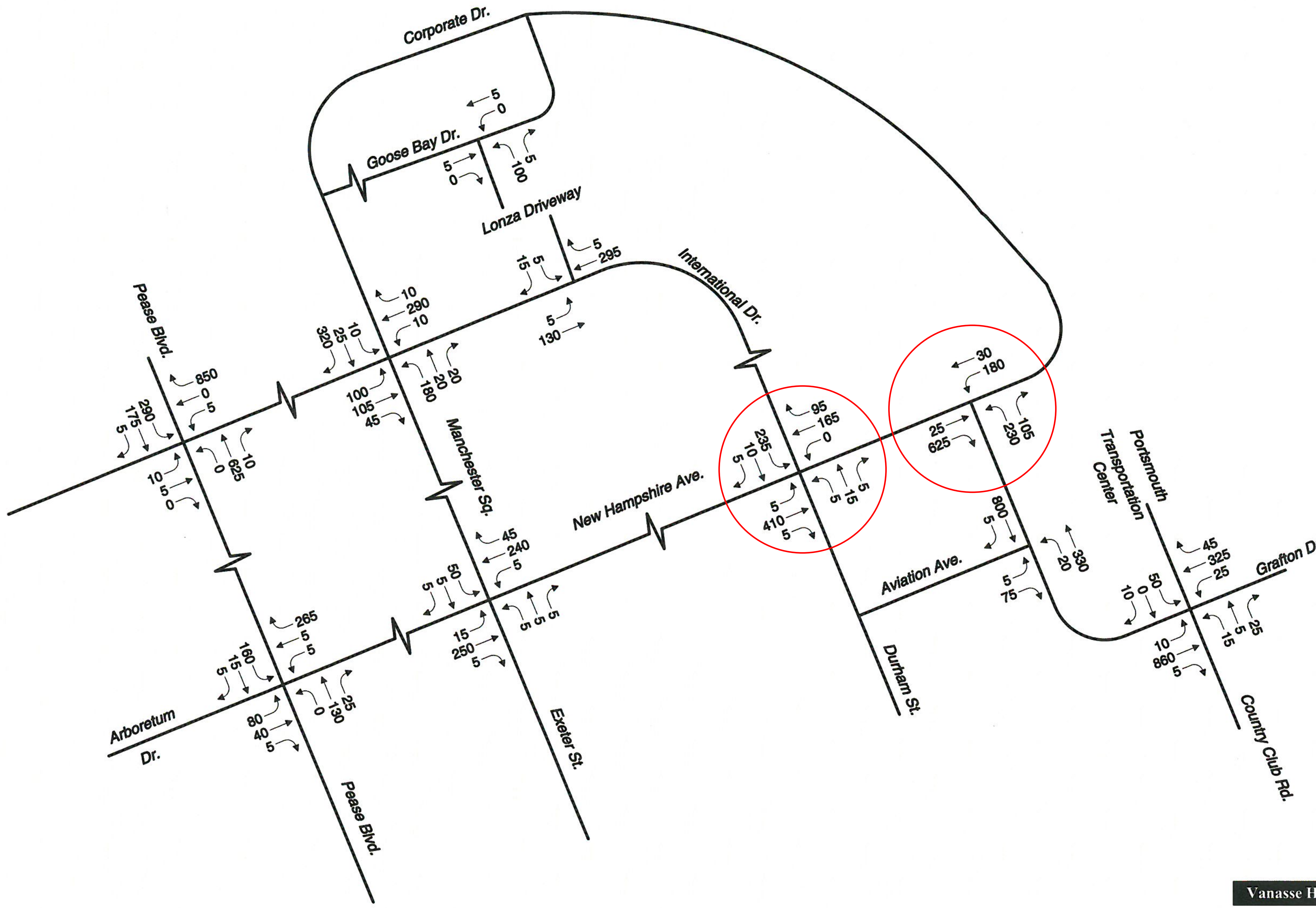
J:\52102.01\graphics\FIGURES\52102.00-TraffNet.dwg



Vanasse Hangen Brustlin, Inc.

Figure 1-9

2010 Existing
Weekday Morning (7:45 AM-8:45 AM)
Peak Hour Traffic Volume Network
Pease InternationalTradeport



Vanasse Hangen Brustlin, Inc.

Figure 1-10

2010 Existing
Weekday Evening (4:30 PM-5:30 PM)
Peak Hour Traffic Volume Network
Pease International Tradeport

Volume Report

Job 856_010_TB_ATR 6A
Area Portsmouth, NH
Location Newington Street EB, west of Route 4 Southbound On/Off-Ramps

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Wednesday, February 16, 2022

Time	Total		EB				Time	Total		EB			
0000	73		73		0		1200	178		178		0	
0015	18		18		0		1215	138		138		0	
0030	47		47		0		1230	115		115		0	
0045	9	147	9	147	0	0	1245	118	549	118	549	0	0
0100	9		9		0		1300	123		123		0	
0115	2		2		0		1315	113		113		0	
0130	3		3		0		1330	131		131		0	
0145	1	15	1	15	0	0	1345	111	478	111	478	0	0
0200	8		8		0		1400	134		134		0	
0215	4		4		0		1415	147		147		0	
0230	1		1		0		1430	184		184		0	
0245	6	19	6	19	0	0	1445	148	613	148	613	0	0
0300	5		5		0		1500	184		184		0	
0315	6		6		0		1515	133		133		0	
0330	6		6		0		1530	231		231		0	
0345	4	21	4	21	0	0	1545	166	714	166	714	0	0
0400	5		5		0		1600	230		230		0	
0415	9		9		0		1615	215		215		0	
0430	11		11		0		1630	251		251		0	
0445	7	32	7	32	0	0	1645	176	872	176	872	0	0
0500	13		13		0		1700	278		278		0	
0515	14		14		0		1715	193		193		0	
0530	6		6		0		1730	177		177		0	
0545	16	49	16	49	0	0	1745	133	781	133	781	0	0
0600	22		22		0		1800	127		127		0	
0615	27		27		0		1815	82		82		0	
0630	53		53		0		1830	82		82		0	
0645	56	158	56	158	0	0	1845	75	366	75	366	0	0
0700	49		49		0		1900	85		85		0	
0715	29		29		0		1915	72		72		0	
0730	52		52		0		1930	56		56		0	
0745	52	182	52	182	0	0	1945	26	239	26	239	0	0
0800	57		57		0		2000	50		50		0	
0815	50		50		0		2015	34		34		0	
0830	49		49		0		2030	19		19		0	
0845	56	212	56	212	0	0	2045	19	122	19	122	0	0
0900	63		63		0		2100	29		29		0	
0915	56		56		0		2115	17		17		0	
0930	69		69		0		2130	17		17		0	
0945	98	286	98	286	0	0	2145	25	88	25	88	0	0
1000	74		74		0		2200	23		23		0	
1015	88		88		0		2215	18		18		0	
1030	98		98		0		2230	56		56		0	
1045	99	359	99	359	0	0	2245	37	134	37	134	0	0
1100	130		130		0		2300	29		29		0	
1115	129		129		0		2315	15		15		0	
1130	134		134		0		2330	24		24		0	
1145	185	578	185	578	0	0	2345	13	81	13	81	0	0
							Total	**7095**		**7095**		**0**	

Volume Report

Job 856_010_TB_ATR 6A
Area Portsmouth, NH
Location Newington Street EB, west of Route 4 Southbound On/Off-Ramps

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Thursday, February 17, 2022

Time	Total		EB				Time	Total		EB			
0000	66		66		0		1200	197		197		0	
0015	17		17		0		1215	160		160		0	
0030	47		47		0		1230	132		132		0	
0045	12	142	12	142	0	0	1245	113	602	113	602	0	0
0100	9		9		0		1300	143		143		0	
0115	4		4		0		1315	94		94		0	
0130	8		8		0		1330	125		125		0	
0145	4	25	4	25	0	0	1345	114	476	114	476	0	0
0200	2		2		0		1400	142		142		0	
0215	10		10		0		1415	129		129		0	
0230	3		3		0		1430	211		211		0	
0245	7	22	7	22	0	0	1445	173	655	173	655	0	0
0300	4		4		0		1500	192		192		0	
0315	4		4		0		1515	144		144		0	
0330	6		6		0		1530	237		237		0	
0345	8	22	8	22	0	0	1545	177	750	177	750	0	0
0400	2		2		0		1600	217		217		0	
0415	12		12		0		1615	215		215		0	
0430	18		18		0		1630	218		218		0	
0445	7	39	7	39	0	0	1645	220	870	220	870	0	0
0500	14		14		0		1700	265		265		0	
0515	9		9		0		1715	174		174		0	
0530	6		6		0		1730	162		162		0	
0545	21	50	21	50	0	0	1745	134	735	134	735	0	0
0600	17		17		0		1800	127		127		0	
0615	21		21		0		1815	107		107		0	
0630	45		45		0		1830	84		84		0	
0645	62	145	62	145	0	0	1845	80	398	80	398	0	0
0700	64		64		0		1900	95		95		0	
0715	40		40		0		1915	90		90		0	
0730	34		34		0		1930	59		59		0	
0745	54	192	54	192	0	0	1945	29	273	29	273	0	0
0800	60		60		0		2000	53		53		0	
0815	49		49		0		2015	40		40		0	
0830	65		65		0		2030	27		27		0	
0845	60	234	60	234	0	0	2045	23	143	23	143	0	0
0900	91		91		0		2100	32		32		0	
0915	72		72		0		2115	24		24		0	
0930	85		85		0		2130	21		21		0	
0945	74	322	74	322	0	0	2145	32	109	32	109	0	0
1000	85		85		0		2200	28		28		0	
1015	76		76		0		2215	16		16		0	
1030	115		115		0		2230	64		64		0	
1045	116	392	116	392	0	0	2245	17	125	17	125	0	0
1100	122		122		0		2300	24		24		0	
1115	125		125		0		2315	7		7		0	
1130	141		141		0		2330	21		21		0	
1145	156	544	156	544	0	0	2345	16	68	16	68	0	0
							Total	**7333**		**7333**		**0**	

Volume Report

Job 856_010_TB_ATR 6A
Area Portsmouth, NH
Location Newington Street EB, west of Route 4 Southbound On/Off-Ramps

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Friday, February 18, 2022

Time	Total		EB				Time	Total		EB			
0000	75		75		0		1200	166		166		0	
0015	13		13		0		1215	139		139		0	
0030	53		53		0		1230	150		150		0	
0045	13	154	13	154	0	0	1245	93	548	93	548	0	0
0100	13		13		0		1300	130		130		0	
0115	3		3		0		1315	113		113		0	
0130	4		4		0		1330	133		133		0	
0145	2	22	2	22	0	0	1345	121	497	121	497	0	0
0200	6		6		0		1400	150		150		0	
0215	9		9		0		1415	133		133		0	
0230	4		4		0		1430	202		202		0	
0245	8	27	8	27	0	0	1445	161	646	161	646	0	0
0300	3		3		0		1500	172		172		0	
0315	4		4		0		1515	158		158		0	
0330	7		7		0		1530	211		211		0	
0345	2	16	2	16	0	0	1545	154	695	154	695	0	0
0400	8		8		0		1600	192		192		0	
0415	8		8		0		1615	141		141		0	
0430	11		11		0		1630	182		182		0	
0445	10	37	10	37	0	0	1645	169	684	169	684	0	0
0500	14		14		0		1700	191		191		0	
0515	7		7		0		1715	165		165		0	
0530	12		12		0		1730	116		116		0	
0545	20	53	20	53	0	0	1745	91	563	91	563	0	0
0600	15		15		0		1800	83		83		0	
0615	16		16		0		1815	74		74		0	
0630	45		45		0		1830	62		62		0	
0645	61	137	61	137	0	0	1845	74	293	74	293	0	0
0700	65		65		0		1900	84		84		0	
0715	31		31		0		1915	64		64		0	
0730	31		31		0		1930	43		43		0	
0745	52	179	52	179	0	0	1945	31	222	31	222	0	0
0800	45		45		0		2000	32		32		0	
0815	57		57		0		2015	30		30		0	
0830	51		51		0		2030	33		33		0	
0845	70	223	70	223	0	0	2045	25	120	25	120	0	0
0900	80		80		0		2100	22		22		0	
0915	76		76		0		2115	10		10		0	
0930	70		70		0		2130	22		22		0	
0945	61	287	61	287	0	0	2145	27	81	27	81	0	0
1000	100		100		0		2200	20		20		0	
1015	82		82		0		2215	19		19		0	
1030	88		88		0		2230	60		60		0	
1045	108	378	108	378	0	0	2245	23	122	23	122	0	0
1100	115		115		0		2300	16		16		0	
1115	117		117		0		2315	17		17		0	
1130	118		118		0		2330	18		18		0	
1145	134	484	134	484	0	0	2345	11	62	11	62	0	0
							Total	**6530**		**6530**		**0**	

Volume Report

Job 856_010_TB_ATR 6A
Area Portsmouth, NH
Location Newington Street EB, west of Route 4 Southbound On/Off-Ramps

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Saturday, February 19, 2022

Time	Total		EB			
0000	60		60		0	
0015	16		16		0	
0030	34		34		0	
0045	7	117	7	117	0	0
0100	7		7		0	
0115	6		6		0	
0130	4		4		0	
0145	5	22	5	22	0	0
0200	6		6		0	
0215	5		5		0	
0230	4		4		0	
0245	3	18	3	18	0	0
0300	2		2		0	
0315	1		1		0	
0330	5		5		0	
0345	3	11	3	11	0	0
0400	3		3		0	
0415	6		6		0	
0430	6		6		0	
0445	6	21	6	21	0	0
0500	8		8		0	
0515	6		6		0	
0530	4		4		0	
0545	12	30	12	30	0	0
0600	11		11		0	
0615	8		8		0	
0630	19		19		0	
0645	28	66	28	66	0	0
0700	35		35		0	
0715	14		14		0	
0730	15		15		0	
0745	18	82	18	82	0	0
0800	15		15		0	
0815	18		18		0	
0830	29		29		0	
0845	18	80	18	80	0	0
0900	25		25		0	
0915	49		49		0	
0930	43		43		0	
0945	33	150	33	150	0	0
1000	38		38		0	
1015	53		53		0	
1030	48		48		0	
1045	52	191	52	191	0	0
1100	65		65		0	
1115	65		65		0	
1130	69		69		0	
1145	70	269	70	269	0	0

Time	Total		EB			
1200	86		86		0	
1215	69		69		0	
1230	60		60		0	
1245	73	288	73	288	0	0
1300	62		62		0	
1315	57		57		0	
1330	68		68		0	
1345	50	237	50	237	0	0
1400	54		54		0	
1415	61		61		0	
1430	59		59		0	
1445	48	222	48	222	0	0
1500	70		70		0	
1515	65		65		0	
1530	52		52		0	
1545	38	225	38	225	0	0
1600	45		45		0	
1615	44		44		0	
1630	52		52		0	
1645	44	185	44	185	0	0
1700	66		66		0	
1715	44		44		0	
1730	55		55		0	
1745	48	213	48	213	0	0
1800	52		52		0	
1815	44		44		0	
1830	56		56		0	
1845	57	209	57	209	0	0
1900	54		54		0	
1915	35		35		0	
1930	18		18		0	
1945	36	143	36	143	0	0
2000	29		29		0	
2015	21		21		0	
2030	24		24		0	
2045	19	93	19	93	0	0
2100	14		14		0	
2115	9		9		0	
2130	17		17		0	
2145	14	54	14	54	0	0
2200	10		10		0	
2215	18		18		0	
2230	10		10		0	
2245	8	46	8	46	0	0
2300	8		8		0	
2315	11		11		0	
2330	6		6		0	
2345	4	29	4	29	0	0
Total	**3001**		**3001**		**0**	

Volume Report

Job 856_010_TB_ATR 6B
Area Portsmouth, NH
Location Newington Street WB, west of Route 4 Southbound On/Off-Ramps

BOSTON
TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

Wednesday, February 16, 2022

Time	Total		WB			
0000	3		3		0	
0015	3		3		0	
0030	4		4		0	
0045	0	10	0	10	0	0
0100	3		3		0	
0115	3		3		0	
0130	5		5		0	
0145	5	16	5	16	0	0
0200	5		5		0	
0215	5		5		0	
0230	3		3		0	
0245	2	15	2	15	0	0
0300	1		1		0	
0315	6		6		0	
0330	5		5		0	
0345	6	18	6	18	0	0
0400	6		6		0	
0415	4		4		0	
0430	15		15		0	
0445	35	60	35	60	0	0
0500	43		43		0	
0515	67		67		0	
0530	102		102		0	
0545	169	381	169	381	0	0
0600	115		115		0	
0615	164		164		0	
0630	158		158		0	
0645	257	694	257	694	0	0
0700	137		137		0	
0715	178		178		0	
0730	214		214		0	
0745	262	791	262	791	0	0
0800	233		233		0	
0815	202		202		0	
0830	176		176		0	
0845	164	775	164	775	0	0
0900	102		102		0	
0915	101		101		0	
0930	91		91		0	
0945	102	396	102	396	0	0
1000	107		107		0	
1015	85		85		0	
1030	84		84		0	
1045	112	388	112	388	0	0
1100	92		92		0	
1115	110		110		0	
1130	125		125		0	
1145	128	455	128	455	0	0
1200	130		130		0	
1215	139		139		0	
1230	146		146		0	
1245	145	560	145	560	0	0
1300	149		149		0	
1315	126		126		0	
1330	121		121		0	
1345	140	536	140	536	0	0
1400	116		116		0	
1415	99		99		0	
1430	94		94		0	
1445	95	404	95	404	0	0
1500	106		106		0	
1515	108		108		0	
1530	84		84		0	
1545	97	395	97	395	0	0
1600	58		58		0	
1615	92		92		0	
1630	85		85		0	
1645	96	331	96	331	0	0
1700	82		82		0	
1715	56		56		0	
1730	64		64		0	
1745	64	266	64	266	0	0
1800	70		70		0	
1815	68		68		0	
1830	48		48		0	
1845	35	221	35	221	0	0
1900	37		37		0	
1915	23		23		0	
1930	24		24		0	
1945	35	119	35	119	0	0
2000	24		24		0	
2015	21		21		0	
2030	29		29		0	
2045	18	92	18	92	0	0
2100	22		22		0	
2115	13		13		0	
2130	13		13		0	
2145	16	64	16	64	0	0
2200	24		24		0	
2215	31		31		0	
2230	12		12		0	
2245	5	72	5	72	0	0
2300	7		7		0	
2315	8		8		0	
2330	3		3		0	
2345	4	22	4	22	0	0
Total	**7081**		**7081**		**0**	

Volume Report

Job 856_010_TB_ATR 6B
Area Portsmouth, NH
Location Newington Street WB, west of Route 4 Southbound On/Off-Ramps

BOSTON
TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

Thursday, February 17, 2022

Time	Total		WB			
0000	7		7		0	
0015	3		3		0	
0030	1		1		0	
0045	3	14	3	14	0	0
0100	5		5		0	
0115	5		5		0	
0130	4		4		0	
0145	4	18	4	18	0	0
0200	3		3		0	
0215	4		4		0	
0230	7		7		0	
0245	2	16	2	16	0	0
0300	5		5		0	
0315	3		3		0	
0330	8		8		0	
0345	10	26	10	26	0	0
0400	2		2		0	
0415	6		6		0	
0430	13		13		0	
0445	32	53	32	53	0	0
0500	40		40		0	
0515	69		69		0	
0530	97		97		0	
0545	170	376	170	376	0	0
0600	110		110		0	
0615	153		153		0	
0630	157		157		0	
0645	242	662	242	662	0	0
0700	164		164		0	
0715	178		178		0	
0730	207		207		0	
0745	286	835	286	835	0	0
0800	194		194		0	
0815	190		190		0	
0830	185		185		0	
0845	181	750	181	750	0	0
0900	113		113		0	
0915	124		124		0	
0930	115		115		0	
0945	112	464	112	464	0	0
1000	93		93		0	
1015	71		71		0	
1030	81		81		0	
1045	99	344	99	344	0	0
1100	81		81		0	
1115	99		99		0	
1130	124		124		0	
1145	146	450	146	450	0	0
1200	117		117		0	
1215	155		155		0	
1230	140		140		0	
1245	172	584	172	584	0	0
1300	142		142		0	
1315	122		122		0	
1330	120		120		0	
1345	155	539	155	539	0	0
1400	131		131		0	
1415	120		120		0	
1430	93		93		0	
1445	107	451	107	451	0	0
1500	136		136		0	
1515	118		118		0	
1530	96		96		0	
1545	96	446	96	446	0	0
1600	77		77		0	
1615	75		75		0	
1630	96		96		0	
1645	92	340	92	340	0	0
1700	75		75		0	
1715	74		74		0	
1730	53		53		0	
1745	75	277	75	277	0	0
1800	49		49		0	
1815	67		67		0	
1830	57		57		0	
1845	35	208	35	208	0	0
1900	29		29		0	
1915	34		34		0	
1930	28		28		0	
1945	26	117	26	117	0	0
2000	25		25		0	
2015	23		23		0	
2030	18		18		0	
2045	26	92	26	92	0	0
2100	20		20		0	
2115	12		12		0	
2130	15		15		0	
2145	16	63	16	63	0	0
2200	23		23		0	
2215	32		32		0	
2230	14		14		0	
2245	11	80	11	80	0	0
2300	4		4		0	
2315	4		4		0	
2330	4		4		0	
2345	5	17	5	17	0	0
Total	**7222**		**7222**		**0**	

Volume Report

Job 856_010_TB_ATR 6B
Area Portsmouth, NH
Location Newington Street WB, west of Route 4 Southbound On/Off-Ramps

BOSTON
TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

Friday, February 18, 2022

Time	Total		WB				Time	Total		WB			
0000	3		3		0		1200	95		95		0	
0015	0		0		0		1215	107		107		0	
0030	5		5		0		1230	139		139		0	
0045	3	11	3	11	0	0	1245	145	486	145	486	0	0
0100	1		1		0		1300	112		112		0	
0115	5		5		0		1315	117		117		0	
0130	3		3		0		1330	115		115		0	
0145	1	10	1	10	0	0	1345	109	453	109	453	0	0
0200	4		4		0		1400	109		109		0	
0215	2		2		0		1415	105		105		0	
0230	4		4		0		1430	88		88		0	
0245	1	11	1	11	0	0	1445	102	404	102	404	0	0
0300	2		2		0		1500	84		84		0	
0315	1		1		0		1515	88		88		0	
0330	5		5		0		1530	80		80		0	
0345	7	15	7	15	0	0	1545	91	343	91	343	0	0
0400	3		3		0		1600	66		66		0	
0415	9		9		0		1615	66		66		0	
0430	10		10		0		1630	74		74		0	
0445	32	54	32	54	0	0	1645	52	258	52	258	0	0
0500	29		29		0		1700	61		61		0	
0515	64		64		0		1715	46		46		0	
0530	70		70		0		1730	46		46		0	
0545	102	265	102	265	0	0	1745	69	222	69	222	0	0
0600	103		103		0		1800	28		28		0	
0615	118		118		0		1815	45		45		0	
0630	126		126		0		1830	41		41		0	
0645	197	544	197	544	0	0	1845	34	148	34	148	0	0
0700	130		130		0		1900	35		35		0	
0715	122		122		0		1915	36		36		0	
0730	172		172		0		1930	31		31		0	
0745	218	642	218	642	0	0	1945	36	138	36	138	0	0
0800	171		171		0		2000	25		25		0	
0815	179		179		0		2015	41		41		0	
0830	139		139		0		2030	25		25		0	
0845	155	644	155	644	0	0	2045	17	108	17	108	0	0
0900	90		90		0		2100	14		14		0	
0915	89		89		0		2115	11		11		0	
0930	91		91		0		2130	7		7		0	
0945	82	352	82	352	0	0	2145	13	45	13	45	0	0
1000	79		79		0		2200	5		5		0	
1015	66		66		0		2215	8		8		0	
1030	90		90		0		2230	13		13		0	
1045	86	321	86	321	0	0	2245	7	33	7	33	0	0
1100	85		85		0		2300	6		6		0	
1115	86		86		0		2315	4		4		0	
1130	97		97		0		2330	5		5		0	
1145	109	377	109	377	0	0	2345	4	19	4	19	0	0
							Total	**5903**		**5903**		**0**	

Volume Report

Job 856_010_TB_ATR 6B
Area Portsmouth, NH
Location Newington Street WB, west of Route 4 Southbound On/Off-Ramps

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

Saturday, February 19, 2022

Time	Total		WB				Time	Total		WB			
0000	4		4		0		1200	48		48		0	
0015	5		5		0		1215	65		65		0	
0030	1		1		0		1230	59		59		0	
0045	5	15	5	15	0	0	1245	59	231	59	231	0	0
0100	3		3		0		1300	55		55		0	
0115	0		0		0		1315	54		54		0	
0130	3		3		0		1330	59		59		0	
0145	9	15	9	15	0	0	1345	47	215	47	215	0	0
0200	1		1		0		1400	55		55		0	
0215	2		2		0		1415	66		66		0	
0230	6		6		0		1430	59		59		0	
0245	3	12	3	12	0	0	1445	55	235	55	235	0	0
0300	0		0		0		1500	56		56		0	
0315	3		3		0		1515	44		44		0	
0330	4		4		0		1530	49		49		0	
0345	3	10	3	10	0	0	1545	42	191	42	191	0	0
0400	2		2		0		1600	61		61		0	
0415	4		4		0		1615	41		41		0	
0430	8		8		0		1630	40		40		0	
0445	14	28	14	28	0	0	1645	39	181	39	181	0	0
0500	13		13		0		1700	51		51		0	
0515	20		20		0		1715	58		58		0	
0530	23		23		0		1730	64		64		0	
0545	31	87	31	87	0	0	1745	54	227	54	227	0	0
0600	32		32		0		1800	44		44		0	
0615	37		37		0		1815	57		57		0	
0630	50		50		0		1830	61		61		0	
0645	53	172	53	172	0	0	1845	46	208	46	208	0	0
0700	22		22		0		1900	34		34		0	
0715	15		15		0		1915	28		28		0	
0730	24		24		0		1930	22		22		0	
0745	31	92	31	92	0	0	1945	13	97	13	97	0	0
0800	28		28		0		2000	24		24		0	
0815	29		29		0		2015	15		15		0	
0830	39		39		0		2030	20		20		0	
0845	36	132	36	132	0	0	2045	14	73	14	73	0	0
0900	22		22		0		2100	15		15		0	
0915	23		23		0		2115	11		11		0	
0930	27		27		0		2130	10		10		0	
0945	25	97	25	97	0	0	2145	8	44	8	44	0	0
1000	32		32		0		2200	4		4		0	
1015	29		29		0		2215	7		7		0	
1030	46		46		0		2230	6		6		0	
1045	45	152	45	152	0	0	2245	3	20	3	20	0	0
1100	46		46		0		2300	11		11		0	
1115	38		38		0		2315	6		6		0	
1130	60		60		0		2330	3		3		0	
1145	61	205	61	205	0	0	2345	4	24	4	24	0	0
							Total	**2763**		**2763**		**0**	

APPENDIX B

NHDOT Historical Traffic Volumes,
Seasonal Adjustment Factors &
Historical Growth Rates

Location Info	
Location ID	82379024
Type	I-SECTION
Functional Class	7
Located On	Pease Blvd
Direction	2-WAY
Community	PORTSMOUTH
MPO_ID	
HPMS ID	
Agency	New Hampshire DOT

Count Data Info	
Start Date	7/18/2018
End Date	7/19/2018
Start Time	12:00 AM
End Time	12:00 AM
Direction	2-WAY
Notes	nhdot
Count Source	8.2379E+11
File Name	823790243070.prn
Weather	
Study	
Owner	iwong
QC Status	Accepted

Interval: 60 mins	
Time	**Hourly Count**
00:00 - 01:00	251
01:00 - 02:00	46
02:00 - 03:00	123
03:00 - 04:00	92
04:00 - 05:00	184
05:00 - 06:00	416
06:00 - 07:00	1130
07:00 - 08:00	1664
08:00 - 09:00	1817
09:00 - 10:00	1277
10:00 - 11:00	1079
11:00 - 12:00	1570
12:00 - 13:00	2098
13:00 - 14:00	1616
14:00 - 15:00	1424
15:00 - 16:00	1936
16:00 - 17:00	2032
17:00 - 18:00	1831
18:00 - 19:00	989
19:00 - 20:00	603
20:00 - 21:00	417
21:00 - 22:00	343
22:00 - 23:00	210
23:00 - 24:00	166
TOTAL	23314

Year 2018 Monthly Data

Group 4 Averages: Urban Highways

Month	ADT	Adjustment to Average	Adjustment to Peak
January	11,282	1.13	1.24
February	11,848	1.08	1.18
March	11,828	1.08	1.18
April	12,491	1.02	1.12
May	13,587	0.94	1.03
June	13,911	0.92	1.00
July	13,765	0.93	1.01
August	13,945	0.92	1.00
September	13,168	0.97	1.06
October	13,367	0.96	1.04
November	12,215	1.05	1.14
December	11,963	1.07	1.17

Average ADT: 12,781
Peak ADT: 13,945

GROUP	COUNTER	TOWN	LOCATION
04	02051003	BOW	NH 3A south of Robinson Rd
04	02089001	CHICHESTER	NH 28 (Suncook Valley Rd) north of Bear Hill Rd
04	02091001	CLAREMONT	NH 12/103 east of Vermont SL
04	62099056	CONCORD	NH 106 (Sheep Davis Rd) at Loudon TL (north of Ashby Rd)
04	72099278	CONCORD	US 3 (Fisherville Rd) north of Sewalls Falls Rd
04	02125001	DOVER	Dover Point Rd south of Thornwood Ln
04	02133021	DURHAM	US 4 east of NH 108
04	82197076	HAMPTON	US 1 (Lafayette Rd) south of Ramp to NH 101
04	*02229022*	*HUDSON**	*Circumferential Hwy east of Nashua TL*
04	02253025	LEBANON	NH 120 1 mile south of Hanover TL (south of Lahaye Dr)
04	02255001	LEE	NH 125 (Calef Hwy) north of Pinkham Rd
04	02287001	MARLBOROUGH	NH 12 at Swanzey TL
04	02297001	MERRIMACK	US 3 (Daniel Webster Hwy) north of Hilton Dr
04	*02303001*	*MILFORD**	*NH 101A at Amherst TL (west of Overlook Dr)*
04	*02315051*	*NASHUA**	*NH 111 (Bridge / Ferry St) at Hudson TL*
04	02339001	NEWPORT	NH 10 1 mile south of Croydon TL (north of Corbin Rd)
04	02345001	NORTH HAMPTON	US 1 (Lafayette Rd) north of North Rd
04	*62387052*	*RINDGE**	*US 202 at Jaffrey TL (north of County Rd)*
04	02445001	TEMPLE	NH 101 at Wilton TL (west of Old County Farm Rd)
04	02489001	WINDHAM	NH 28 at Derry TL (north of Northland Rd)

** denotes counter that is not included in calculation*

Year 2019 Monthly Data

Group 4 Averages: Urban Highways

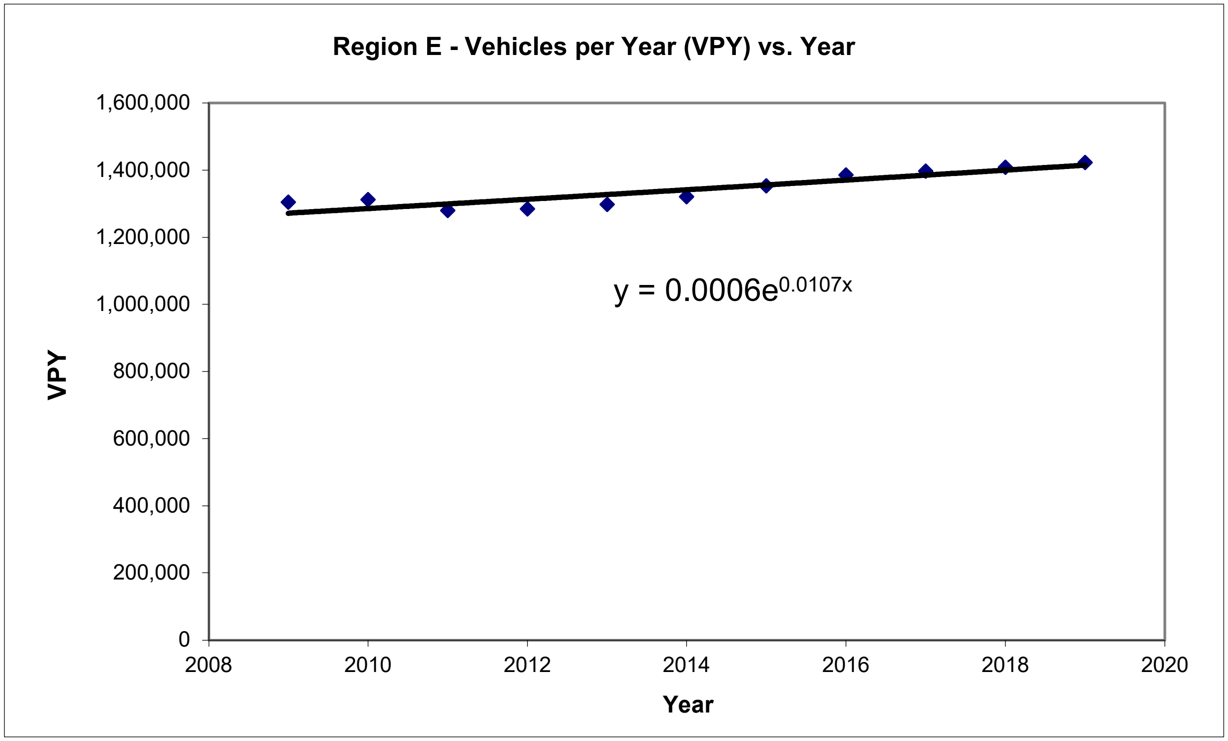
Month	ADT	Adjustment to Average	Adjustment to Peak
January	11,431	1.12	1.23
February	11,848	1.08	1.18
March	12,141	1.06	1.15
April	12,860	1.00	1.09
May	13,551	0.95	1.03
June	13,785	0.93	1.02
July	13,942	0.92	1.01
August	14,016	0.92	1.00
September	13,379	0.96	1.05
October	13,339	0.96	1.05
November	12,265	1.05	1.14
December	11,496	1.12	1.22

Average ADT: 12,838
Peak ADT: 14,016

GROUP	COUNTER	TOWN	LOCATION
04	02051003	BOW	NH 3A south of Robinson Rd
04	02089001	CHICHESTER	NH 28 (Suncook Valley Rd) north of Bear Hill Rd
04	02091001	CLAREMONT	NH 12/103 east of Vermont SL
04	62099056	CONCORD	NH 106 (Sheep Davis Rd) at Loudon TL (north of Ashby Rd)
04	72099278	CONCORD	US 3 (Fisherville Rd) north of Sewalls Falls Rd
04	02125001	DOVER	Dover Point Rd south of Thornwood Ln
04	02133021	DURHAM	US 4 east of NH 108
04	82197076	HAMPTON	US 1 (Lafayette Rd) south of Ramp to NH 101
04	*02229022*	*HUDSON**	*Circumferential Hwy east of Nashua TL*
04	02253025	LEBANON	NH 120 1 mile south of Hanover TL (south of Lahaye Dr)
04	02255001	LEE	NH 125 (Calef Hwy) north of Pinkham Rd
04	02287001	MARLBOROUGH	NH 12 at Swanzey TL
04	02297001	MERRIMACK	US 3 (Daniel Webster Hwy) north of Hilton Dr
04	*02303001*	*MILFORD**	*NH 101A at Amherst TL (west of Overlook Dr)*
04	*02315051*	*NASHUA**	*NH 111 (Bridge / Ferry St) at Hudson TL*
04	02339001	NEWPORT	NH 10 1 mile south of Croydon TL (north of Corbin Rd)
04	02345001	NORTH HAMPTON	US 1 (Lafayette Rd) north of North Rd
04	*62387052*	*RINDGE**	*US 202 at Jaffrey TL (north of County Rd)*
04	02445001	TEMPLE	NH 101 at Wilton TL (west of Old County Farm Rd)
04	02489001	WINDHAM	NH 28 at Derry TL (north of Northland Rd)

** denotes counter that is not included in calculation*

Year	Total
2009	1303948
2010	1312251
2011	1279824
2012	1284314
2013	1298171
2014	1320862
2015	1353486
2016	1385361
2017	1396932
2018	1408237
2019	1422176
CAGR	0.87%
Exp	1.07%
Avg	0.97%



APPENDIX C

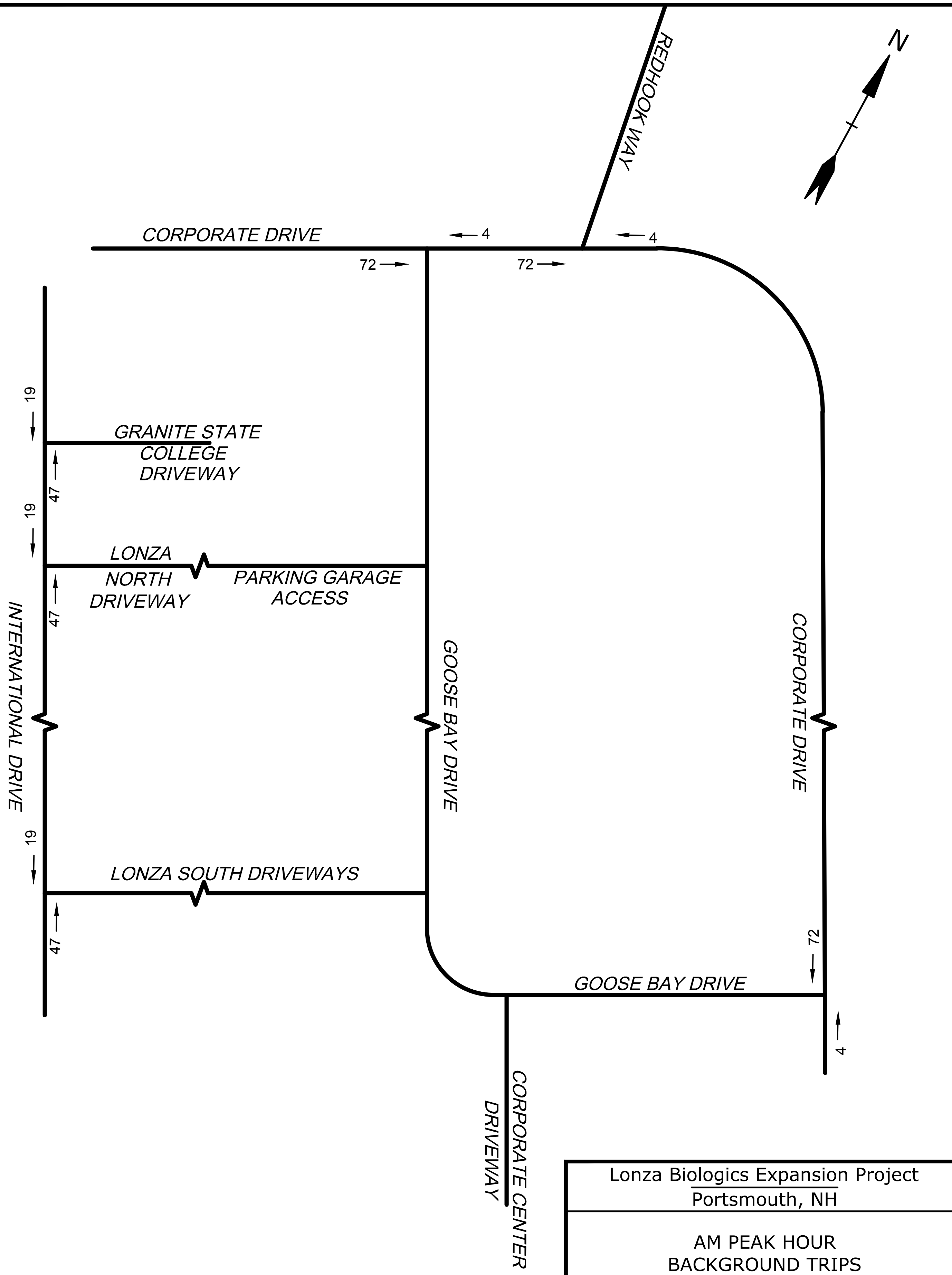
Traffic Volume Adjustment Calculation

Traffic Volume Adjustment Factor Calculation

Peak Hour	February 2022 ATR Data: Feb 2022	February 2022 ATR Data: 2022 Seasonally Adjust to Peak[1]	NHDOT Count Station Data (Loc ID 82379024) - Pease Blvd, West of Route 4 SB Ramps: July 2018	2018 Seasonally Adjusted[2]	Grown to 2019[3]	Adjustment Factor (to 2019)	
AM Peak	1027	**1212**	1817	1835	**1854**	**53%**	<-- Apply to AM Voumes
PM Peak	1210	**1428**	2032	2052	**2073**	**45%**	<-- Apply to PM Voumes

[1] 2019 Seasonal Adjustment Factor to Peak	1.18	2019 NHDOT Group 4 Adjustment to Peak for February
[2] 2018 Seasonal Adjustment Factor to Peak	1.01	2018 NHDOT Group 4 Adjustment to Peak for July
[3] 2019 Annual Growth	1.0%	Per LOC ID 82379024 growth from 2018 to 2019

APPENDIX D
Background Development
Traffic Volumes

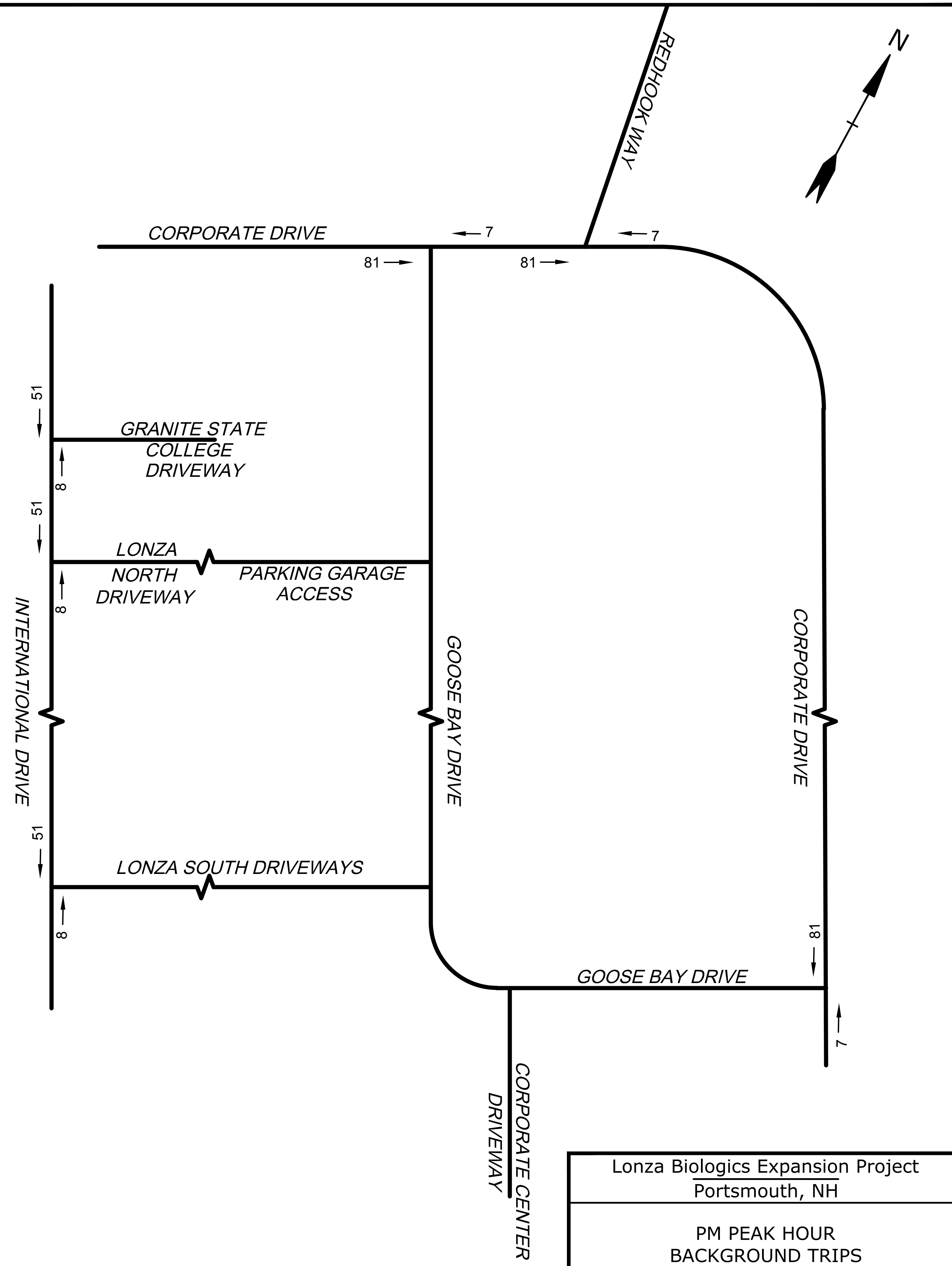


Lonza Biologics Expansion Project
Portsmouth, NH

AM PEAK HOUR
BACKGROUND TRIPS
PEASE MASTER PLAN

DATE:	02/26/18
SCALE:	NO SCALE
FIGURE A1	

Tighe&Bond
www.tighebond.com

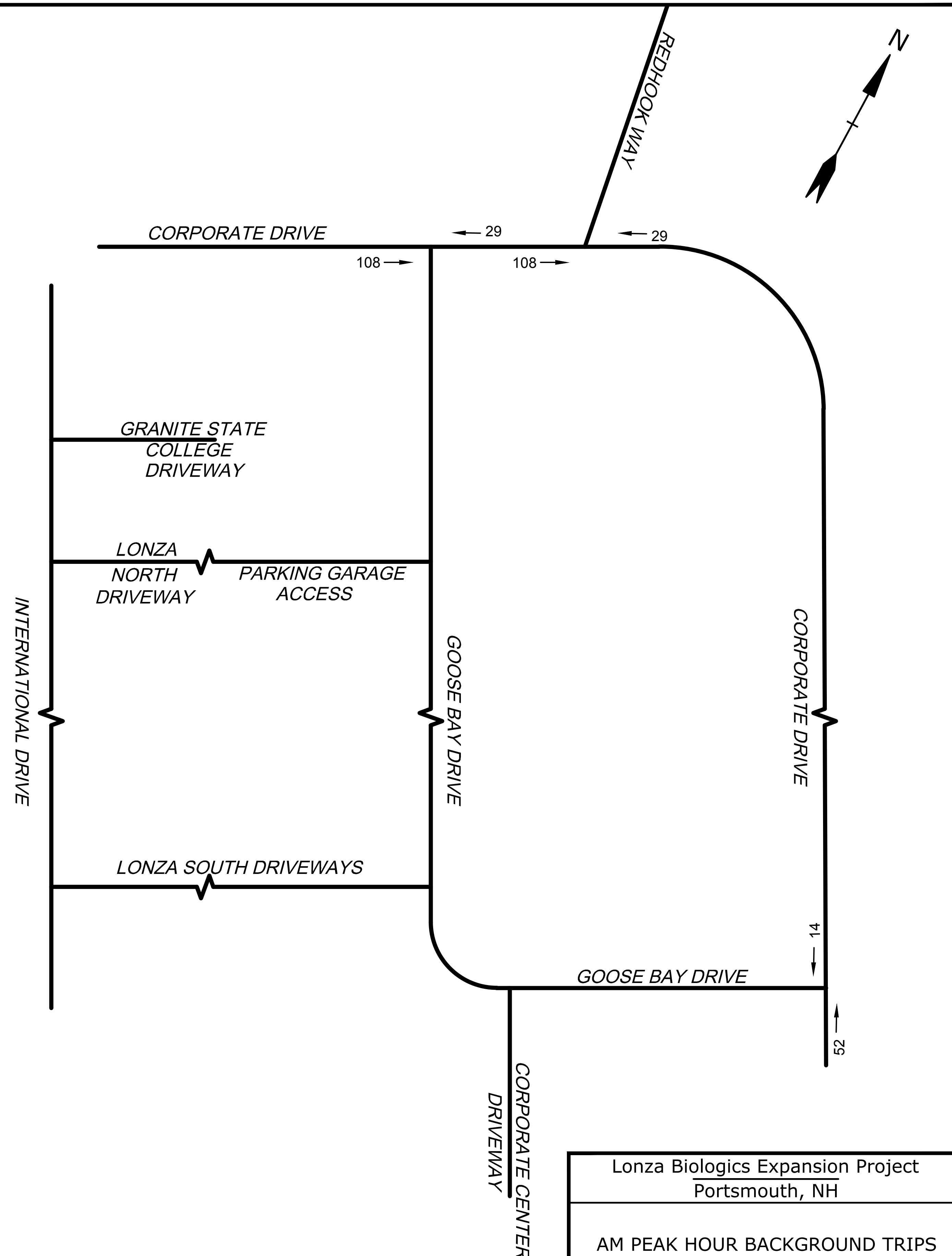


Lonza Biologics Expansion Project
Portsmouth, NH

PM PEAK HOUR
BACKGROUND TRIPS
PEASE MASTER PLAN

DATE: 02/26/18
SCALE: NO SCALE
FIGURE A2

Tighe&Bond
www.tighebond.com

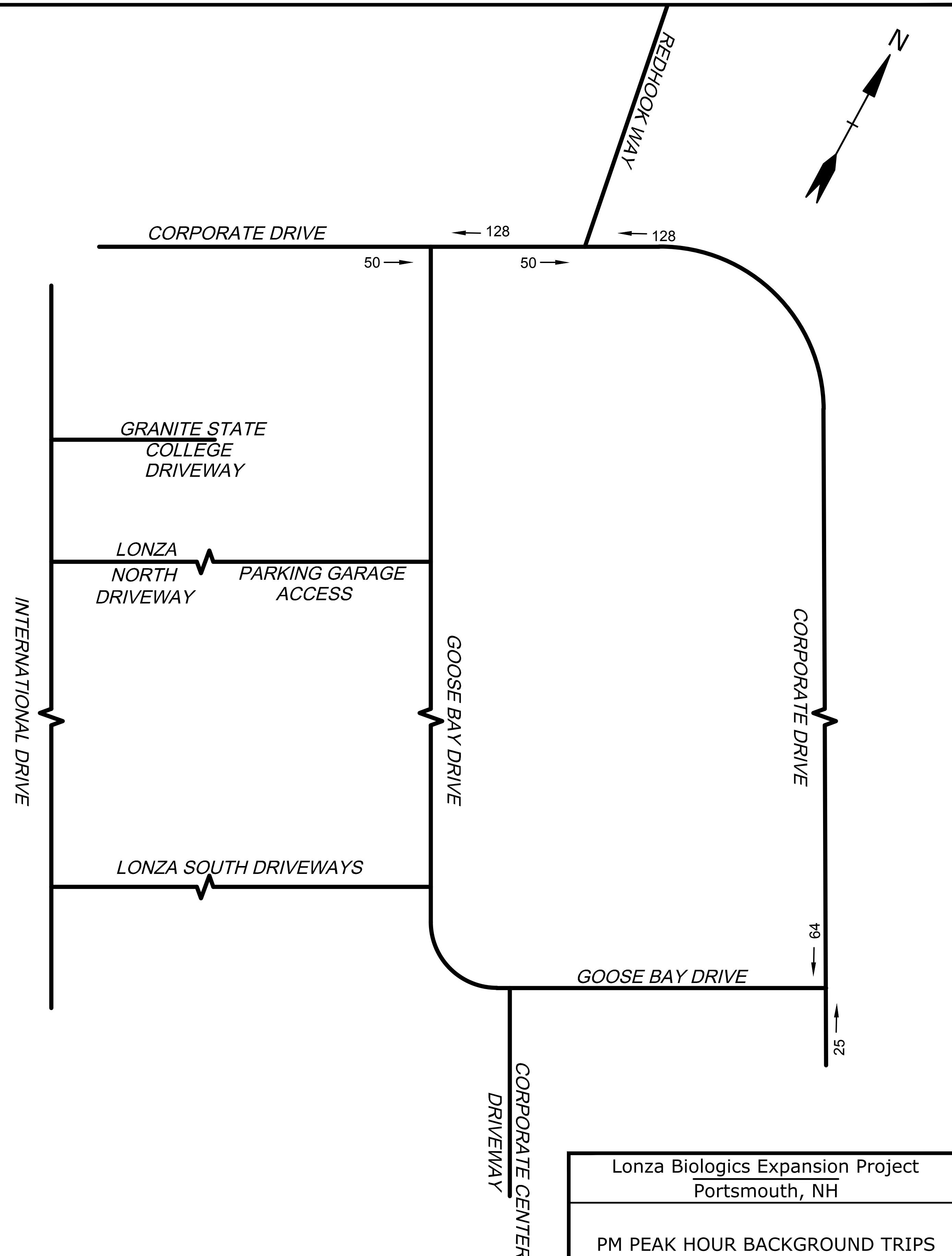


Lonza Biologics Expansion Project
Portsmouth, NH

AM PEAK HOUR BACKGROUND TRIPS
73 CORPORATE DRIVE

DATE:	02/26/18
SCALE:	NO SCALE
FIGURE A3	

Tighe&Bond
www.tighebond.com

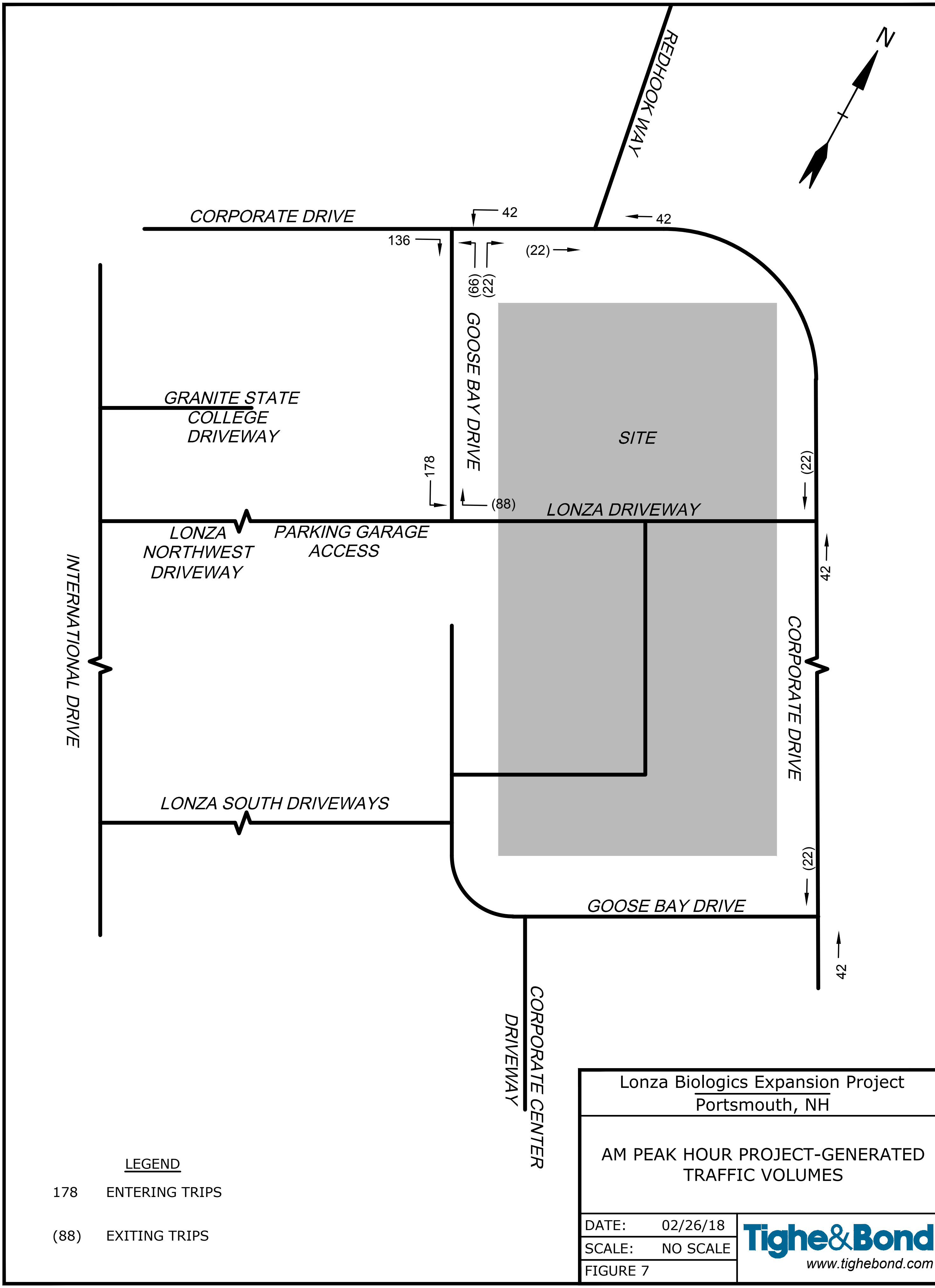


Lonza Biologics Expansion Project
Portsmouth, NH

PM PEAK HOUR BACKGROUND TRIPS
73 CORPORATE DRIVE

DATE:	02/26/18
SCALE:	NO SCALE
FIGURE A4	

Tighe&Bond
www.tighebond.com

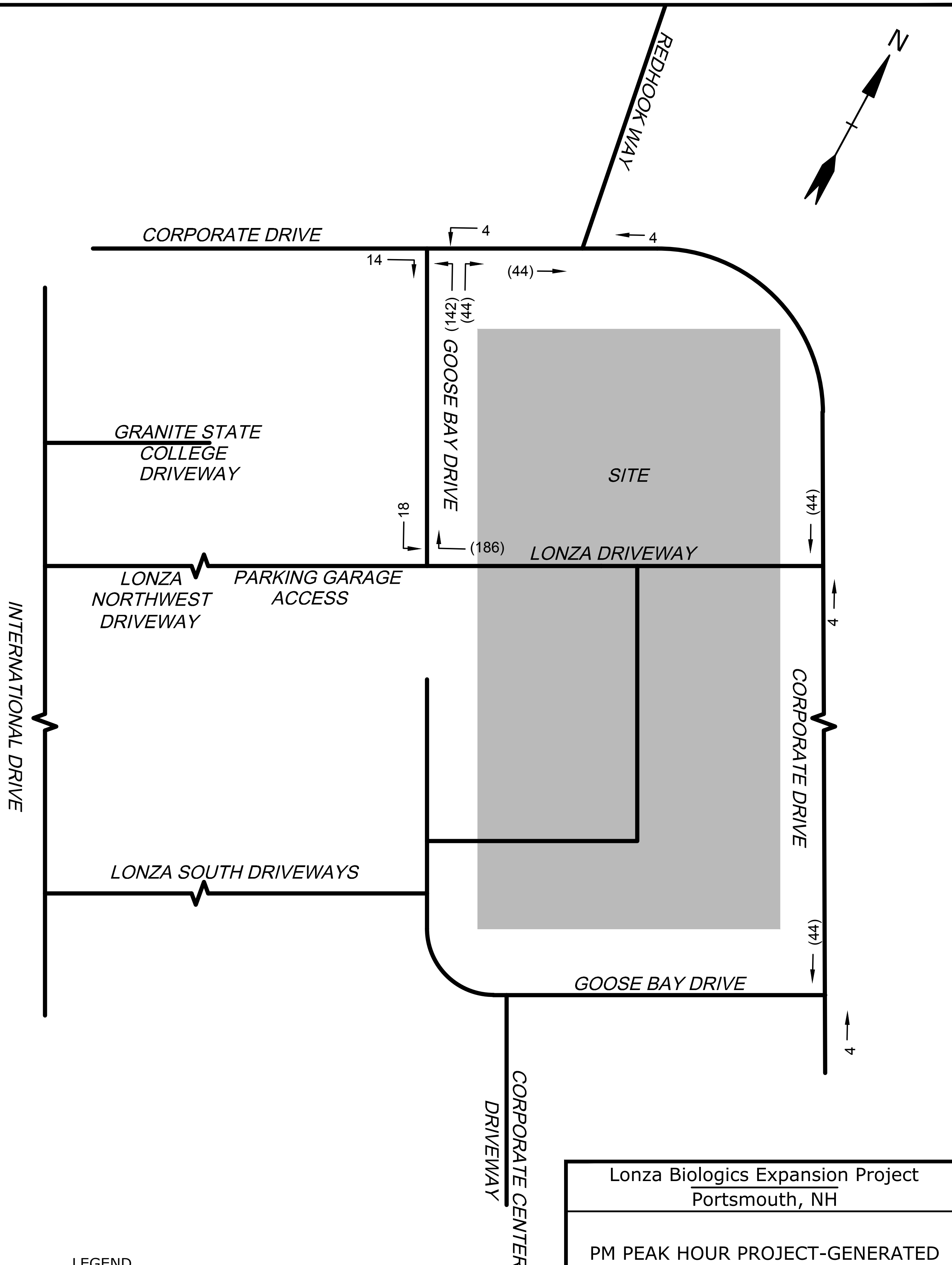


Lonza Biologics Expansion Project
Portsmouth, NH

AM PEAK HOUR PROJECT-GENERATED TRAFFIC VOLUMES

DATE: 02/26/18
SCALE: NO SCALE
FIGURE 7

Tighe&Bond
www.tighebond.com



LEGEND

18	ENTERING TRIPS
(186)	EXITING TRIPS

Lonza Biologics Expansion Project
Portsmouth, NH

PM PEAK HOUR PROJECT-GENERATED TRAFFIC VOLUMES

DATE:	02/26/18
SCALE:	NO SCALE
FIGURE 8	

Tighe&Bond
www.tighebond.com

APPENDIX E

Collision History Summary

Study Area Collision History Summary

COLLISION TYPE

	2007	2008	2009	2019	2020	2021	Total	Percent
Angle	0	0	0	10	8	8	**26**	**39.4%**
Rear-End	0	0	0	9	3	4	**16**	**24.2%**
Sideswipe, Same Direction	0	0	0	0	1	2	**3**	**4.5%**
Animal	0	0	0	0	1	1	**2**	**3.0%**
Fixed Object	1	0	0	0	0	2	**3**	**4.5%**
Other/Unknown	3	7	4	0	0	1	**15**	**22.7%**
Overturn/Rollover	0	0	0	1	0	0	**1**	**1.5%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

CONTRIBUTING FACTOR

	2007	2008	2009	2019	2020	2021	Total	Percent
Other/Unknown	4	7	4	20	13	18	**66**	**100.0%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

COLLISION EVENT

	2007	2008	2009	2019	2020	2021	Total	Percent
Motor Vehicle	4	7	4	20	13	18	**66**	**100.0%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

SEVERITY

	2007	2008	2009	2019	2020	2021	Total	Percent
Minor Injury / Property Damage Only (PDO)	3	7	4	19	13	18	**64**	**97.0%**
Serious Injury	1	0	0	1	0	0	**2**	**3.0%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

DAY & TIME

	2007	2008	2009	2019	2020	2021	Total	Percent
Weekday 6-9 A.M.	1	0	1	1	4	1	**8**	**12.1%**
Weekday 3-6 P.M.	0	0	0	3	1	3	**7**	**10.6%**
Weekday Off-Peak	1	7	3	14	7	10	**42**	**63.6%**
Saturday 11 A.M. - 2 P.M.	0	0	0	1	0	1	**2**	**3.0%**
Weekend Off-Peak	2	0	0	1	1	3	**7**	**10.6%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

WEATHER

	2007	2008	2009	2019	2020	2021	Total	Percent
Clear	4	2	3	3	3	9	**24**	**36.4%**
Rain	0	1	0	1	0	0	**2**	**3.0%**
Snow	0	4	1	0	1	0	**6**	**9.1%**
Other/Unknown	0	0	0	16	9	9	**34**	**51.5%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

ROAD SURFACE CONDITION

	2007	2008	2009	2019	2020	2021	Total	Percent
Dry	4	2	2	3	3	8	**22**	**33.3%**
Wet	0	1	1	1	0	1	**4**	**6.1%**
Snow	0	4	1	0	1	0	**6**	**9.1%**
Other/Unknown	0	0	0	16	9	9	**34**	**51.5%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

LIGHT CONDITIONS

	2007	2008	2009	2019	2020	2021	Total	Percent
Other/Unknown	4	7	4	20	13	18	**66**	**100.0%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

COLLISIONS BY STUDY AREA INTERSECTION

	2007	2008	2009	2019	2020	2021	Total	Percent
Gosling Road/Pease Boulevard at US Route 4 NB Ramps				1	0	3	**4**	**6.1%**
Pease Boulevard at US Route 4 SB Ramps				1	3	3	**7**	**10.6%**
Pease Boulevard at International Drive				1	0	0	**1**	**1.5%**
Pease Boulevard at New Hampshire Avenue/Arboretum Drive				1	1	3	**5**	**7.6%**
New Hampshire Avenue at Exeter Street/Manchester Square				4	4	3	**11**	**16.7%**
Grafton Road at Aviation Avenue				2	2	0	**4**	**6.1%**
Grafton Road at Pease Golf Course/Park and Ride Driveway				4	1	4	**9**	**13.6%**
Route 33 (Greenland Road) at Graton Road				5	1	2	**8**	**12.1%**
Route 33 (Greenland Road) at I-95 NB Ramps				1	1	0	**2**	**3.0%**
New Hampshire Avenue at International Drive/Durham Street	1	2	4				**7**	**10.6%**
Coporate Drive at Graton Road	3	5	0				**8**	**12.1%**
TOTAL	**4**	**7**	**4**	**20**	**13**	**18**	**66**	**100%**

Intersection Collision History Summary

Intersection: Gosling Road/Pease Boulevard at US Route 4 NB Ramps

COLLISION TYPE

	2019	2020	2021	Total	Percent
Rear-End	1	0	1	**2**	**50.0%**
Angle	0	0	1	**1**	**25.0%**
Sideswipe, Same Direction	0	0	1	**1**	**25.0%**
TOTAL	**1**	**0**	**3**	**4**	**100%**

SEVERITY

	2019	2020	2021	Total	Percent
Minor Injury / Property Damage Only (PDO)	1	0	3	**4**	**100.0%**
TOTAL	**1**	**0**	**3**	**4**	**100%**

DAY & TIME

	2019	2020	2021	Total	Percent
Weekday Off-Peak	1	0	3	**4**	**100.0%**
TOTAL	**1**	**0**	**3**	**4**	**100%**

WEATHER

	2019	2020	2021	Total	Percent
Clear	1	0	3	**4**	**100.0%**
TOTAL	**1**	**0**	**3**	**4**	**100%**

ROAD SURFACE CONDITION

	2019	2020	2021	Total	Percent
Dry	1	0	3	**4**	**100.0%**
TOTAL	**1**	**0**	**3**	**4**	**100%**

Intersection Collision History Summary

Intersection: **Pease Boulevard** **at** **US Route 4 SB Ramps**

COLLISION TYPE

	2019	2020	2021	Total	Percent
Angle	0	2	2	**4**	**57.1%**
Rear-End	1	0	1	**2**	**28.6%**
Sideswipe, Same Direction	0	1	0	**1**	**14.3%**
TOTAL	**1**	**3**	**3**	**7**	**100%**

SEVERITY

	2019	2020	2021	Total	Percent
Minor Injury / Property Damage Only (PDO)	1	3	3	**7**	**100.0%**
TOTAL	**1**	**3**	**3**	**7**	**100%**

DAY & TIME

	2019	2020	2021	Total	Percent
Weekday 6-9 A.M.	0	1	0	**1**	**14.3%**
Weekday Off-Peak	1	2	1	**4**	**57.1%**
Weekend Off-Peak	0	0	2	**2**	**28.6%**
TOTAL	**1**	**3**	**3**	**7**	**100%**

WEATHER

	2019	2020	2021	Total	Percent
Clear	1	2	3	**6**	**85.7%**
Snow	0	1	0	**1**	**14.3%**
TOTAL	**1**	**3**	**3**	**7**	**100%**

ROAD SURFACE CONDITION

	2019	2020	2021	Total	Percent
Dry	1	2	3	**6**	**85.7%**
Snow	0	1	0	**1**	**14.3%**
TOTAL	**1**	**3**	**3**	**7**	**100%**

Intersection Collision History Summary

Intersection: Pease Boulevard at International Drive

COLLISION TYPE

	2019	2020	2021	Total	Percent
Overturn/Rollover	1	0	0	**1**	**100.0%**
TOTAL	**1**	**0**	**0**	**1**	**100%**

SEVERITY

	2019	2020	2021	Total	Percent
Minor Injury / Property Damage Only (PDO)	1	0	0	**1**	**100.0%**
TOTAL	**1**	**0**	**0**	**1**	**100%**

DAY & TIME

	2019	2020	2021	Total	Percent
Weekday Off-Peak	1	0	0	**1**	**100.0%**
TOTAL	**1**	**0**	**0**	**1**	**100%**

WEATHER

	2019	2020	2021	Total	Percent
Clear	1	0	0	**1**	**100.0%**
TOTAL	**1**	**0**	**0**	**1**	**100%**

ROAD SURFACE CONDITION

	2019	2020	2021	Total	Percent
Dry	1	0	0	**1**	**100.0%**
TOTAL	**1**	**0**	**0**	**1**	**100%**

Intersection Collision History Summary

Intersection: Pease Boulevard at New Hampshire Avenue/Arboretum Drive

COLLISION TYPE

	2019	2020	2021	Total	Percent
Angle	1	1	2	**4**	**80.0%**
Fixed Object	0	0	1	**1**	**20.0%**
TOTAL	**1**	**1**	**3**	**5**	**100%**

SEVERITY

	2019	2020	2021	Total	Percent
Minor Injury / Property Damage Only (PDO)	1	1	3	**5**	**100.0%**
TOTAL	**1**	**1**	**3**	**5**	**100%**

DAY & TIME

	2019	2020	2021	Total	Percent
Weekday 6-9 A.M.	0	1	0	**1**	**20.0%**
Weekday 3-6 P.M.	1	0	2	**3**	**60.0%**
Weekday Off-Peak	0	0	1	**1**	**20.0%**
TOTAL	**1**	**1**	**3**	**5**	**100%**

WEATHER

	2019	2020	2021	Total	Percent
Clear	0	1	3	**4**	**80.0%**
Rain	1	0	0	**1**	**20.0%**
TOTAL	**1**	**1**	**3**	**5**	**100%**

ROAD SURFACE CONDITION

	2019	2020	2021	Total	Percent
Dry	0	1	2	**3**	**60.0%**
Wet	1	0	1	**2**	**40.0%**
TOTAL	**1**	**1**	**3**	**5**	**100%**

Intersection Collision History Summary

Intersection: New Hampshire Avenue at Exeter Street/Manchester Square

COLLISION TYPE

	2019	2020	2021	Total	Percent
Angle	4	4	3	**11**	**100.0%**
TOTAL	**4**	**4**	**3**	**11**	**100%**

SEVERITY

	2019	2020	2021	Total	Percent
Serious Injury	1	0	0	**1**	**9.1%**
Minor Injury / Property Damage Only (PDO)	3	4	3	**10**	**90.9%**
TOTAL	**4**	**4**	**3**	**11**	**100%**

DAY & TIME

	2019	2020	2021	Total	Percent
Weekday 6-9 A.M.	0	2	1	**3**	**27.3%**
Weekday Off-Peak	4	2	2	**8**	**72.7%**
TOTAL	**4**	**4**	**3**	**11**	**100%**

WEATHER

	2019	2020	2021	Total	Percent
Other/Unknown	4	4	3	**11**	**100.0%**
TOTAL	**4**	**4**	**3**	**11**	**100%**

ROAD SURFACE CONDITION

	2019	2020	2021	Total	Percent
Other/Unknown	4	4	3	**11**	**100.0%**
TOTAL	**4**	**4**	**3**	**11**	**100%**

Intersection Collision History Summary

Intersection: Grafton Road at Aviation Avenue

COLLISION TYPE

	2019	2020	2021	Total	Percent
Rear-End	1	1	0	**2**	**50.0%**
Angle	1	0	0	**1**	**25.0%**
Animal	0	1	0	**1**	**25.0%**
TOTAL	**2**	**2**	**0**	**4**	**100%**

SEVERITY

	2019	2020	2021	Total	Percent
Minor Injury / Property Damage Only (PDO)	2	2	0	**4**	**100.0%**
TOTAL	**2**	**2**	**0**	**4**	**100%**

DAY & TIME

	2019	2020	2021	Total	Percent
Weekday 6-9 A.M.	1	0	0	**1**	**25.0%**
Weekday Off-Peak	1	1	0	**2**	**50.0%**
Weekend Off-Peak	0	1	0	**1**	**25.0%**
TOTAL	**2**	**2**	**0**	**4**	**100%**

WEATHER

	2019	2020	2021	Total	Percent
Other/Unknown	2	2	0	**4**	**100.0%**
TOTAL	**2**	**2**	**0**	**4**	**100%**

ROAD SURFACE CONDITION

	2019	2020	2021	Total	Percent
Other/Unknown	2	2	0	**4**	**100.0%**
TOTAL	**2**	**2**	**0**	**4**	**100%**

Intersection Collision History Summary

Intersection: Grafton Road at Pease Golf Course/Park and Ride Driveway

COLLISION TYPE

	2019	2020	2021	Total	Percent
Angle	4	0	0	**4**	**44.4%**
Rear-End	0	1	0	**1**	**11.1%**
Animal	0	0	1	**1**	**11.1%**
Fixed Object	0	0	1	**1**	**11.1%**
Other/Unknown	0	0	1	**1**	**11.1%**
Sideswipe, Same Direction	0	0	1	**1**	**11.1%**
TOTAL	**4**	**1**	**4**	**9**	**100%**

SEVERITY

	2019	2020	2021	Total	Percent
Minor Injury / Property Damage Only (PDO)	4	1	4	**9**	**100.0%**
TOTAL	**4**	**1**	**4**	**9**	**100%**

DAY & TIME

	2019	2020	2021	Total	Percent
Weekday 3-6 P.M.	0	0	1	**1**	**11.1%**
Weekday Off-Peak	4	1	2	**7**	**77.8%**
Weekend Off-Peak	0	0	1	**1**	**11.1%**
TOTAL	**4**	**1**	**4**	**9**	**100%**

WEATHER

	2019	2020	2021	Total	Percent
Other/Unknown	4	1	4	**9**	**100.0%**
TOTAL	**4**	**1**	**4**	**9**	**100%**

ROAD SURFACE CONDITION

	2019	2020	2021	Total	Percent
Other/Unknown	4	1	4	**9**	**100.0%**
TOTAL	**4**	**1**	**4**	**9**	**100%**

Intersection Collision History Summary

Intersection: **Route 33 (Greenland Road)** **at** **Grafton Road**

COLLISION TYPE

	2019	2020	2021	Total	Percent
Rear-End	5	1	2	**8**	**100.0%**
TOTAL	**5**	**1**	**2**	**8**	**100%**

SEVERITY

	2019	2020	2021	Total	Percent
Minor Injury / Property Damage Only (PDO)	5	1	2	**8**	**100.0%**
TOTAL	**5**	**1**	**2**	**8**	**100%**

DAY & TIME

	2019	2020	2021	Total	Percent
Weekday 3-6 P.M.	2	1	0	**3**	**37.5%**
Weekday Off-Peak	2	0	1	**3**	**37.5%**
Saturday 11 A.M. - 2 P.M.	0	0	1	**1**	**12.5%**
Weekend Off-Peak	1	0	0	**1**	**12.5%**
TOTAL	**5**	**1**	**2**	**8**	**100%**

WEATHER

	2019	2020	2021	Total	Percent
Other/Unknown	5	1	2	**8**	**100.0%**
TOTAL	**5**	**1**	**2**	**8**	**100%**

ROAD SURFACE CONDITION

	2019	2020	2021	Total	Percent
Other/Unknown	5	1	2	**8**	**100.0%**
TOTAL	**5**	**1**	**2**	**8**	**100%**

Intersection Collision History Summary

Intersection: **Route 33 (Greenland Road)** **at** **I-95 NB Ramps**

COLLISION TYPE

	2019	2020	2021	Total	Percent
Angle	0	1	0	**1**	**50.0%**
Rear-End	1	0	0	**1**	**50.0%**
TOTAL	**1**	**1**	**0**	**2**	**100%**

SEVERITY

	2019	2020	2021	Total	Percent
Minor Injury / Property Damage Only (PDO)	1	1	0	**2**	**100.0%**
TOTAL	**1**	**1**	**0**	**2**	**100%**

DAY & TIME

	2019	2020	2021	Total	Percent
Weekday Off-Peak	0	1	0	**1**	**50.0%**
Saturday 11 A.M. - 2 P.M.	1	0	0	**1**	**50.0%**
TOTAL	**1**	**1**	**0**	**2**	**100%**

WEATHER

	2019	2020	2021	Total	Percent
Other/Unknown	1	1	0	**2**	**100.0%**
TOTAL	**1**	**1**	**0**	**2**	**100%**

ROAD SURFACE CONDITION

	2019	2020	2021	Total	Percent
Other/Unknown	1	1	0	**2**	**100.0%**
TOTAL	**1**	**1**	**0**	**2**	**100%**

Intersection Collision History Summary

Intersection: **New Hampshire Avenue at International Drive/Durham Street**

COLLISION TYPE

	2007	2008	2009	Total	Percent
Other/Unknown	0	2	4	**6**	**85.7%**
Fixed Object	1	0	0	**1**	**14.3%**
TOTAL	**1**	**2**	**4**	**7**	**100%**

SEVERITY

	2007	2008	2009	Total	Percent
Minor Injury / Property Damage Only (PDO)	1	2	4	**7**	**100.0%**
TOTAL	**1**	**2**	**4**	**7**	**100%**

WEATHER

	2007	2008	2009	Total	Percent
Clear	1	2	3	**6**	**85.7%**
Snow	0	0	1	**1**	**14.3%**
TOTAL	**1**	**2**	**4**	**7**	**100%**

ROAD SURFACE CONDITION

	2007	2008	2009	Total	Percent
Dry	1	2	2	**5**	**71.4%**
Wet	0	0	1	**1**	**14.3%**
Snow	0	0	1	**1**	**14.3%**
TOTAL	**1**	**2**	**4**	**7**	**100%**

Source: Pease Surface Transportation Master Plan 2010 Update, June 2011

Intersection Collision History Summary

Intersection: **Corporate Drive** **at** **Grafton Road**

COLLISION TYPE

	2007	2008	2009	Total	Percent
Other/Unknown	3	5	0	**8**	**100.0%**
TOTAL	**3**	**5**	**0**	**8**	**100%**

SEVERITY

	2007	2008	2009	Total	Percent
Minor Injury / Property Damage Only (PDO)	2	5	0	**7**	**87.5%**
Serious Injury	1	0	0	**1**	**12.5%**
TOTAL	**3**	**5**	**0**	**8**	**100%**

WEATHER

	2007	2008	2009	Total	Percent
Snow	0	4	0	**4**	**50.0%**
Clear	3	0	0	**3**	**37.5%**
TOTAL	**3**	**5**	**0**	**8**	**100%**

ROAD SURFACE CONDITION

	2007	2008	2009	Total	Percent
Snow	0	4	0	**4**	**50.0%**
Dry	3	0	0	**3**	**37.5%**
Wet	0	1	0	**1**	**12.5%**
TOTAL	**3**	**5**	**0**	**8**	**100%**

Source: Pease Surface Transportation Master Plan 2010 Update, June 2011

APPENDIX F
Capacity Analysis Methodology

CAPACITY ANALYSIS METHODOLOGY

A primary result of capacity analysis is the assignment of levels of service to traffic facilities under various traffic flow conditions. The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM).[1] The concept of level of service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year. A description of the operating condition under each level of service is provided below:

- *LOS A* describes conditions with little to no delay to motorists.
- *LOS B* represents a desirable level with relatively low delay to motorists.
- *LOS C* describes conditions with average delays to motorists.
- *LOS D* describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.
- *LOS E* represents operating conditions with high delay values. This level is considered by many agencies to be the limit of acceptable delay.
- *LOS F* is considered to be unacceptable to most drivers with high delay values that often occur, when arrival flow rates exceed the capacity of the intersection.

Signalized Intersections

Levels of service for signalized intersections are also calculated using the operational analysis methodology of the HCM. The methodology for signalized intersections assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on average *control* delay. Control delay is used to establish the operating characteristics for an intersection or an approach to an intersection. Volume-to-capacity (v/c) ratios are also used to help signify the utilization of a lane group's capacity at an intersection. A v/c ratio of ≥1.00 represents conditions when the traffic signal cycle capacity is fully utilized and indicates a capacity failure. The level-of-service criteria for signalized intersections are shown in Table A-1.

[1] *Highway Capacity Manual, 6TH Edition: A Guide for Multimodal Mobility Analysis.* Washington, D.C.: Transportation Research Board, 2016.

Unsignalized Intersections

Levels of service for unsignalized intersections are calculated using the operational analysis methodology of the HCM. The procedure accounts for lane configuration on both the minor and major street approaches, conflicting traffic stream volumes, and the type of intersection control (STOP, YIELD, or all-way STOP control). The definition of level of service for unsignalized intersections is a function of average *control* delay. Control delay at an unsignalized intersection is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. This time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position.

Volume-to-capacity (v/c) ratios are also used to help signify the utilization of a movement's capacity at an intersection. A v/c ratio of ≥1.00 represents conditions when the movement is fully utilized and indicates a capacity failure. The capacity of the movements is based on the distribution of gaps in the major street traffic stream, the selection of gaps to complete the desired movement, and the follow-up headways for each driver in the queue. When an unsignalized intersection is located within 0.25 miles of a signalized intersection, traffic flows may not be random and some platoon structure may exist, thereby affecting the minor street operations. The level-of-service criteria for unsignalized intersections are shown in Table A-1.

TABLE A-1
Level-of-Service Criteria for Intersections

Level of Service	**Signalized Intersection Criteria** Average Control Delay (Seconds per Vehicle)	**Unsignalized Intersection Criteria** Average Control Delay (Seconds per Vehicle)	**V/C Ratio >1.00[a]**
A	≤10	≤10	F
B	>10 and ≤20	>10 and ≤15	F
C	>20 and ≤35	>15 and ≤25	F
D	>35 and ≤55	>25 and ≤35	F
E	>55 and ≤80	>35 and ≤50	F
F	>80	>50	F

Note: [a]For approach-based and intersection-wide assessments, LOS is defined solely by control delay.

Source: *Highway Capacity Manual, 6th Edition: A Guide for Multimodal Mobility Analysis.* Washington, D.C.: Transportation Research Board, 2016. Exhibit 19-8, Pg. 19-16.

For signalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to the entire intersection. For unsignalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups on the minor street approaches or to the left turns from the major street approaches.

APPENDIX G

Capacity Analysis Worksheets

101: International Dr & Pease Blvd
2022 Existing Conditions Weekday AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	126	7	1027	571	130	7	2	280	5	0	0
Future Volume (vph)	0	126	7	1027	571	130	7	2	280	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		0.95		0.97	0.95			1.00	0.88		1.00	
Frt		0.99		1.00	0.97			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.96	1.00		0.95	
Satd. Flow (prot)		3364		3433	3441			1491	2760		2046	
Flt Permitted		1.00		0.95	1.00			0.86	1.00		0.75	
Satd. Flow (perm)		3364		3433	3441			1325	2760		1614	
Peak-hour factor, PHF	0.71	0.71	0.71	0.73	0.73	0.73	0.78	0.78	0.78	0.75	0.75	0.75
Adj. Flow (vph)	0	177	10	1407	782	178	9	3	359	7	0	0
RTOR Reduction (vph)	0	4	0	0	7	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	183	0	1407	953	0	0	12	359	0	7	0
Heavy Vehicles (%)	0%	4%	50%	2%	2%	2%	25%	0%	3%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		10.6		46.2	62.8			17.2	17.2		17.2	
Effective Green, g (s)		10.6		46.2	62.8			17.2	17.2		17.2	
Actuated g/C Ratio		0.12		0.50	0.68			0.19	0.19		0.19	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		387		1723	2348			247	516		301	
v/s Ratio Prot		0.05		c0.41	c0.28							
v/s Ratio Perm								0.01	c0.13		0.00	
v/c Ratio		0.47		0.82	0.41			0.05	0.70		0.02	
Uniform Delay, d1		38.1		19.3	6.4			30.7	35.0		30.5	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.9		3.1	0.1			0.1	4.1		0.0	
Delay (s)		39.0		22.4	6.5			30.8	39.0		30.6	
Level of Service		D		C	A			C	D		C	
Approach Delay (s)		39.0			16.0			38.7			30.6	
Approach LOS		D			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	92.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

102: US Route 4 SB On-Ramp/US Route 4 SB Off-Ramp & Pease Blvd
2022 Existing Conditions Weekday AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	281	130	154	969	0	0	0	0	543	0	802
Future Volume (vph)	0	281	130	154	969	0	0	0	0	543	0	802
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5981	1419	2918	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5981	1419	2918	3455					3502		2814
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	0	351	162	192	1211	0	0	0	0	724	0	1069
RTOR Reduction (vph)	0	0	109	0	0	0	0	0	0	0	0	118
Lane Group Flow (vph)	0	351	54	193	1211	0	0	0	0	724	0	951
Heavy Vehicles (%)	0%	2%	10%	12%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		33.3	33.3	25.0	64.3					25.0		25.0
Effective Green, g (s)		33.3	33.3	25.0	64.3					25.0		25.0
Actuated g/C Ratio		0.33	0.33	0.25	0.63					0.25		0.25
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		1966	466	720	2193					864		694
v/s Ratio Prot		0.06	0.04	0.07	c0.35					0.21		c0.34
v/s Ratio Perm												
v/c Ratio		0.18	0.11	0.27	0.55					0.84		1.37
Uniform Delay, d1		24.2	23.7	30.8	10.4					36.2		38.1
Progression Factor		1.00	1.00	0.87	1.63					1.00		1.00
Incremental Delay, d2		0.1	0.2	0.1	0.2					7.9		176.1
Delay (s)		24.3	24.0	27.0	17.2					44.2		214.2
Level of Service		C	C	C	B					D		F
Approach Delay (s)		24.2			18.5			0.0			145.5	
Approach LOS		C			B			A			F	

Intersection Summary			
HCM 2000 Control Delay	80.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	101.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	712	0	0	372	76	751	0	359	0	0	0
Future Volume (vph)	112	712	0	0	372	76	751	0	359	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.97		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3113	3421			4661		3433		2733			
Flt Permitted	0.45	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1462	3421			4661		3433		2733			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.85	0.85	0.78	0.92	0.78	0.92	0.92	0.92
Adj. Flow (vph)	129	818	0	0	438	89	963	0	460	0	0	0
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	346	0	0	0
Lane Group Flow (vph)	129	818	0	0	500	0	963	0	114	0	0	0
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	2%	4%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	50.3	33.3			41.3		25.0		25.0			
Effective Green, g (s)	50.3	33.3			41.3		25.0		25.0			
Actuated g/C Ratio	0.50	0.33			0.41		0.25		0.25			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	1003	1124			1900		847		674			
v/s Ratio Prot	c0.02	c0.24			c0.11		c0.28		0.04			
v/s Ratio Perm	0.04											
v/c Ratio	0.13	0.73			0.26		1.14		0.17			
Uniform Delay, d1	13.4	30.0			19.9		38.1		30.0			
Progression Factor	1.15	1.28			1.00		1.00		1.00			
Incremental Delay, d2	0.1	2.3			0.2		75.9		0.2			
Delay (s)	15.4	40.6			20.1		114.1		30.2			
Level of Service	B	D			C		F		C			
Approach Delay (s)		37.1			20.1			87.0			0.0	
Approach LOS		D			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	58.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	101.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1074	545	2053	218	294	598
Future Volume (vph)	1074	545	2053	218	294	598
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3303	1599	4988	1229	3242	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3303	1599	4988	1229	3242	3374
Peak-hour factor, PHF	0.87	0.87	0.93	0.93	0.81	0.81
Adj. Flow (vph)	1234	626	2208	234	363	738
RTOR Reduction (vph)	0	319	0	149	0	0
Lane Group Flow (vph)	1234	307	2208	85	363	738
Heavy Vehicles (%)	6%	1%	4%	27%	8%	7%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	33.6	33.6	16.4	56.0
Effective Green, g (s)	25.0	25.0	33.6	33.6	16.4	56.0
Actuated g/C Ratio	0.27	0.27	0.36	0.36	0.18	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	887	429	1802	444	571	2031
v/s Ratio Prot	c0.37	0.19	c0.44	0.07	c0.11	0.22
v/s Ratio Perm						
v/c Ratio	1.39	0.72	1.23	0.19	0.64	0.36
Uniform Delay, d1	34.0	30.8	29.7	20.4	35.5	9.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	183.0	6.0	106.6	1.0	2.6	0.5
Delay (s)	217.0	36.8	136.3	21.3	38.1	9.9
Level of Service	F	D	F	C	D	A
Approach Delay (s)	156.3		125.2			19.2
Approach LOS	F		F			B

Intersection Summary			
HCM 2000 Control Delay	114.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	608	1990	717	536	148	175
Future Volume (vph)	608	1990	717	536	148	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3471	3343	1583	1719	1538
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3471	3343	1583	1719	1538
Peak-hour factor, PHF	0.86	0.86	0.96	0.96	0.76	0.76
Adj. Flow (vph)	707	2314	747	558	195	230
RTOR Reduction (vph)	0	0	0	388	0	179
Lane Group Flow (vph)	707	2314	747	170	195	51
Heavy Vehicles (%)	1%	4%	8%	2%	5%	5%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	9.9	33.9	18.0	18.0	13.1	13.1
Effective Green, g (s)	9.9	33.9	18.0	18.0	13.1	13.1
Actuated g/C Ratio	0.17	0.57	0.31	0.31	0.22	0.22
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	299	1994	1019	482	381	341
v/s Ratio Prot	c0.40	c0.67	0.22		c0.11	0.03
v/s Ratio Perm				0.11		
v/c Ratio	2.36	1.16	0.73	0.35	0.51	0.15
Uniform Delay, d1	24.6	12.6	18.3	16.0	20.1	18.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	624.3	78.2	4.7	2.0	1.5	0.3
Delay (s)	648.9	90.8	23.0	18.0	21.7	18.7
Level of Service	F	F	C	B	C	B
Approach Delay (s)		221.4	20.9		20.1	
Approach LOS		F	C		C	

Intersection Summary			
HCM 2000 Control Delay	148.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1373	765	108	777	476	688
Future Volume (vph)	1373	765	108	777	476	688
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1468	1752	3438	1680	1538
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1468	1752	3438	1680	1538
Peak-hour factor, PHF	0.95	0.95	0.90	0.90	0.80	0.80
Adj. Flow (vph)	1445	805	120	863	595	860
RTOR Reduction (vph)	0	431	0	0	0	388
Lane Group Flow (vph)	1445	375	120	863	595	472
Heavy Vehicles (%)	2%	10%	3%	5%	11%	5%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	64.2	64.2	15.8	86.0	40.0	40.0
Effective Green, g (s)	64.2	64.2	15.8	86.0	40.0	40.0
Actuated g/C Ratio	0.47	0.47	0.11	0.62	0.29	0.29
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1646	682	200	2142	486	445
v/s Ratio Prot	c0.41	0.26	c0.07	0.25	c0.35	0.31
v/s Ratio Perm						
v/c Ratio	0.88	0.55	0.60	0.40	1.22	1.06
Uniform Delay, d1	33.4	26.5	58.1	13.1	49.0	49.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.0	3.2	5.6	0.6	118.2	59.8
Delay (s)	40.3	29.7	63.7	13.6	167.2	108.8
Level of Service	D	C	E	B	F	F
Approach Delay (s)	36.5			19.8	132.7	
Approach LOS	D			B	F	

Intersection Summary			
HCM 2000 Control Delay	62.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	30.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	27	9	265	116	108	20	97	96	25	278	32
Future Vol, veh/h	0	27	9	265	116	108	20	97	96	25	278	32
Peak Hour Factor	0.50	0.50	0.50	0.70	0.70	0.70	0.87	0.87	0.87	0.70	0.70	0.70
Heavy Vehicles, %	0	0	0	2	0	5	0	6	8	14	0	0
Mvmt Flow	0	54	18	379	166	154	23	111	110	36	397	46
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	12.4	27.9	15.9	43.8
HCM LOS	B	D	C	E

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	9%	0%	100%	0%	7%
Vol Thru, %	46%	75%	0%	52%	83%
Vol Right, %	45%	25%	0%	48%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	213	36	265	224	335
LT Vol	20	0	265	0	25
Through Vol	97	27	0	116	278
RT Vol	96	9	0	108	32
Lane Flow Rate	245	72	379	320	479
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.469	0.157	0.805	0.601	0.897
Departure Headway (Hd)	6.898	7.872	7.654	6.761	6.744
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	521	454	473	534	536
Service Time	4.947	5.946	5.401	4.507	4.781
HCM Lane V/C Ratio	0.47	0.159	0.801	0.599	0.894
HCM Control Delay	15.9	12.4	35.2	19.2	43.8
HCM Lane LOS	C	B	E	C	E
HCM 95th-tile Q	2.5	0.6	7.5	3.9	10.4

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	11	13	34	5	20	34	231	43	45	415	43
Future Vol, veh/h	7	11	13	34	5	20	34	231	43	45	415	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	83	83	83	79	79	79	66	66	66
Heavy Vehicles, %	25	0	14	0	33	9	0	4	0	4	1	4
Mvmt Flow	10	15	18	41	6	24	43	292	54	68	629	65

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1218	1230	662	1219	1235	319	694	0	0	346	0	0
Stage 1	798	798	-	405	405	-	-	-	-	-	-	-
Stage 2	420	432	-	814	830	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.34	7.1	6.83	6.29	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.426	3.5	4.297	3.381	2.2	-	-	2.236	-	-
Pot Cap-1 Maneuver	141	179	441	159	154	706	911	-	-	1202	-	-
Stage 1	347	401	-	626	548	-	-	-	-	-	-	-
Stage 2	568	586	-	375	344	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	122	161	441	130	138	706	911	-	-	1202	-	-
Mov Cap-2 Maneuver	122	161	-	130	138	-	-	-	-	-	-	-
Stage 1	331	378	-	597	522	-	-	-	-	-	-	-
Stage 2	517	558	-	325	324	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28	34.6	1	0.7
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	911	-	-	200	131	706	1202	-	-
HCM Lane V/C Ratio	0.047	-	-	0.218	0.359	0.034	0.057	-	-
HCM Control Delay (s)	9.1	-	-	28	47.1	10.3	8.2	-	-
HCM Lane LOS	A	-	-	D	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	1.5	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	5	40	10	10	5	300	250	15	130	15
Future Vol, veh/h	5	10	5	40	10	10	5	300	250	15	130	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	11	6	44	11	11	6	333	278	17	144	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	682	810	153	679	679	472	161	0	0	611	0	0
Stage 1	187	187	-	484	484	-	-	-	-	-	-	-
Stage 2	495	623	-	195	195	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	364	314	893	366	374	592	1418	-	-	968	-	-
Stage 1	815	745	-	564	552	-	-	-	-	-	-	-
Stage 2	556	478	-	807	739	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	342	306	893	347	364	592	1418	-	-	968	-	-
Mov Cap-2 Maneuver	342	306	-	347	364	-	-	-	-	-	-	-
Stage 1	809	731	-	560	548	-	-	-	-	-	-	-
Stage 2	531	475	-	775	725	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	16.6	0.1	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1418	-	-	378	376	968	-	-
HCM Lane V/C Ratio	0.004	-	-	0.059	0.177	0.017	-	-
HCM Control Delay (s)	7.5	0	-	15.1	16.6	8.8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	12.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	546	220	25	9	40	145
Future Vol, veh/h	546	220	25	9	40	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	607	244	28	10	44	161

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	110	44	205	0	-	0
Stage 1	44	-	-	-	-	-
Stage 2	66	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	887	1026	1366	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	869	1026	1366	-	-	-
Mov Cap-2 Maneuver	869	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.7	5.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1366	-	869	1026	-	-
HCM Lane V/C Ratio	0.02	-	0.698	0.238	-	-
HCM Control Delay (s)	7.7	-	18.1	9.6	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	5.9	0.9	-	-

Intersection						
Int Delay, s/veh	1.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	182	1057	283	0
Future Vol, veh/h	0	18	182	1057	283	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	67	67	75	75
Heavy Vehicles, %	2	2	1	2	2	0
Mvmt Flow	0	36	272	1578	377	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2499	377	377	0	-	0
Stage 1	377	-	-	-	-	-
Stage 2	2122	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	32	670	1187	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	670	1187	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	99	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	1.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1187	-	670	-	-
HCM Lane V/C Ratio	0.229	-	0.054	-	-
HCM Control Delay (s)	8.9	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.9	-	0.2	-	-

Intersection	
Int Delay, s/veh	23.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	35	0	4	32	1235	76	11	283	0
Future Vol, veh/h	0	0	5	35	0	4	32	1235	76	11	283	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	71	71	71	71	71	71	70	70	70
Heavy Vehicles, %	0	0	33	17	0	50	6	1	7	17	3	0
Mvmt Flow	0	0	13	49	0	6	45	1739	107	16	404	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2322	2372	404	2326	2319	1793	404	0	0	1846	0	0
Stage 1	436	436	-	1883	1883	-	-	-	-	-	-	-
Stage 2	1886	1936	-	443	436	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.53	7.27	6.5	6.7	4.16	-	-	4.27	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.597	3.653	4	3.75	2.254	-	-	2.353	-	-
Pot Cap-1 Maneuver	27	35	585	~ 23	38	75	1133	-	-	295	-	-
Stage 1	603	583	-	83	121	-	-	-	-	-	-	-
Stage 2	92	114	-	566	583	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	24	33	585	~ 21	35	75	1133	-	-	295	-	-
Mov Cap-2 Maneuver	24	33	-	~ 21	35	-	-	-	-	-	-	-
Stage 1	603	542	-	83	121	-	-	-	-	-	-	-
Stage 2	85	114	-	515	542	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	$ 989.4	0.2	0.7
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1133	-	-	585	23	295	-	-
HCM Lane V/C Ratio	0.04	-	-	0.022	2.388	0.053	-	-
HCM Control Delay (s)	8.3	0	-	11.3	$ 989.4	17.9	0	-
HCM Lane LOS	A	A	-	B	F	C	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	7	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	22.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	199	1144	0	0	323
Future Vol, veh/h	0	199	1144	0	0	323
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	76	95	92	92	80
Heavy Vehicles, %	2	3	2	2	2	4
Mvmt Flow	0	262	1204	0	0	404

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1204	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.245	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3285	-	-	-	-
Pot Cap-1 Maneuver	0	~ 222	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	~ 222	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	162.8	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	222	-
HCM Lane V/C Ratio	-	1.179	-
HCM Control Delay (s)	-	162.8	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	12.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	428	7	36	246	298	10	0	1149	99	15	3
Future Volume (vph)	5	428	7	36	246	298	10	0	1149	99	15	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95		0.97	0.95			1.00	0.88		1.00	
Frt	1.00	1.00		1.00	0.92			1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	
Satd. Flow (prot)	1357	3532		3155	3299			1491	2842		2059	
Flt Permitted	0.95	1.00		0.95	1.00			0.70	1.00		0.75	
Satd. Flow (perm)	1357	3532		3155	3299			1107	2842		1614	
Peak-hour factor, PHF	0.69	0.69	0.69	0.88	0.88	0.88	0.93	0.93	0.93	0.81	0.81	0.81
Adj. Flow (vph)	7	620	10	41	280	339	11	0	1235	122	19	4
RTOR Reduction (vph)	0	1	0	0	163	0	0	0	0	0	1	0
Lane Group Flow (vph)	7	629	0	41	456	0	0	11	1235	0	144	0
Heavy Vehicles (%)	33%	2%	0%	11%	1%	0%	17%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	2.3	17.1		5.1	20.9			21.0	21.0		21.0	
Effective Green, g (s)	2.3	17.1		5.1	20.9			21.0	21.0		21.0	
Actuated g/C Ratio	0.04	0.28		0.08	0.34			0.34	0.34		0.34	
Clearance Time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)	2.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	50	986		262	1126			379	975		553	
v/s Ratio Prot	0.01	c0.18		0.01	c0.14							
v/s Ratio Perm								0.01	c0.43		0.09	
v/c Ratio	0.14	0.64		0.16	0.40			0.03	1.27		0.26	
Uniform Delay, d1	28.5	19.3		26.1	15.4			13.3	20.1		14.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.5	1.4		0.3	0.2			0.0	128.2		0.3	
Delay (s)	29.0	20.7		26.3	15.6			13.4	148.3		14.8	
Level of Service	C	C		C	B			B	F		B	
Approach Delay (s)		20.8			16.3			147.1			14.8	
Approach LOS		C			B			F			B	

Intersection Summary			
HCM 2000 Control Delay	77.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1091	585	671	453	0	0	0	0	381	0	139
Future Volume (vph)	0	1091	585	671	453	0	0	0	0	381	0	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		6040	1546	3236	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		6040	1546	3236	3455					3502		2814
Peak-hour factor, PHF	0.92	0.85	0.85	0.94	0.94	0.92	0.92	0.92	0.92	0.75	0.25	0.75
Adj. Flow (vph)	0	1284	688	714	482	0	0	0	0	508	0	185
RTOR Reduction (vph)	0	0	365	0	0	0	0	0	0	0	0	141
Lane Group Flow (vph)	0	1284	323	714	482	0	0	0	0	508	0	44
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		35.0	35.0	25.0	61.2					24.4		24.4
Effective Green, g (s)		35.0	35.0	25.0	61.2					24.4		24.4
Actuated g/C Ratio		0.34	0.34	0.24	0.60					0.24		0.24
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		2064	528	790	2064					834		670
v/s Ratio Prot		c0.21	0.21	c0.22	0.14					c0.15		0.02
v/s Ratio Perm												
v/c Ratio		0.62	0.61	0.90	0.23					0.61		0.07
Uniform Delay, d1		28.2	28.0	37.5	9.6					34.8		30.2
Progression Factor		1.00	1.00	1.36	1.16					1.00		1.00
Incremental Delay, d2		0.8	3.0	9.9	0.1					1.9		0.1
Delay (s)		29.0	31.1	61.1	11.2					36.6		30.3
Level of Service		C	C	E	B					D		C
Approach Delay (s)		29.7			41.0			0.0			34.9	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	102.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	659	813	0	0	902	399	222	0	613	0	0	0
Future Volume (vph)	659	813	0	0	902	399	222	0	613	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.95		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3236	3455			4644		3433		2814			
Flt Permitted	0.11	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	389	3455			4644		3433		2814			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.90	0.90	0.94	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	757	934	0	0	1002	443	236	0	652	0	0	0
RTOR Reduction (vph)	0	0	0	0	76	0	0	0	497	0	0	0
Lane Group Flow (vph)	757	934	0	0	1369	0	236	0	155	0	0	0
Heavy Vehicles (%)	1%	1%	2%	2%	1%	0%	2%	2%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	58.8	35.0			36.2		24.4		24.4			
Effective Green, g (s)	58.8	35.0			36.2		24.4		24.4			
Actuated g/C Ratio	0.57	0.34			0.35		0.24		0.24			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	885	1180			1641		818		670			
v/s Ratio Prot	c0.20	0.27			c0.29		c0.07		0.06			
v/s Ratio Perm	0.29											
v/c Ratio	0.86	0.79			0.83		0.29		0.23			
Uniform Delay, d1	26.7	30.4			30.4		31.9		31.4			
Progression Factor	1.62	0.61			1.00		1.00		1.00			
Incremental Delay, d2	6.8	3.4			4.3		0.4		0.4			
Delay (s)	50.2	21.8			34.6		32.3		31.8			
Level of Service	D	C			C		C		C			
Approach Delay (s)		34.5			34.6			31.9			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	102.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1021	173	1757	275	670	1394
Future Volume (vph)	1021	173	1757	275	670	1394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1509	5085	1323	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1509	5085	1323	3433	3539
Peak-hour factor, PHF	0.89	0.89	0.95	0.95	0.84	0.84
Adj. Flow (vph)	1147	194	1849	289	798	1660
RTOR Reduction (vph)	0	140	0	196	0	0
Lane Group Flow (vph)	1147	54	1849	93	798	1660
Heavy Vehicles (%)	4%	7%	2%	18%	2%	2%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	30.0	30.0	20.0	56.0
Effective Green, g (s)	25.0	25.0	30.0	30.0	20.0	56.0
Actuated g/C Ratio	0.27	0.27	0.32	0.32	0.22	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	905	405	1640	426	738	2131
v/s Ratio Prot	c0.34	0.04	c0.36	0.07	c0.23	0.47
v/s Ratio Perm						
v/c Ratio	1.27	0.13	1.13	0.22	1.08	0.78
Uniform Delay, d1	34.0	25.8	31.5	23.0	36.5	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	129.1	0.2	65.8	1.2	57.3	2.9
Delay (s)	163.1	26.0	97.3	24.1	93.8	16.8
Level of Service	F	C	F	C	F	B
Approach Delay (s)	143.3		87.4			41.8
Approach LOS	F		F			D

Intersection Summary			
HCM 2000 Control Delay	81.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	310	1620	1258	206	375	806
Future Volume (vph)	310	1620	1258	206	375	806
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	3539	1583	1787	1599
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3539	3539	1583	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.93	0.93	0.87	0.87
Adj. Flow (vph)	352	1841	1353	222	431	926
RTOR Reduction (vph)	0	0	0	154	0	166
Lane Group Flow (vph)	352	1841	1353	68	431	760
Heavy Vehicles (%)	1%	2%	2%	2%	1%	1%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	5.0	29.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	5.0	29.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.08	0.49	0.31	0.31	0.31	0.31
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	151	1739	1079	482	545	487
v/s Ratio Prot	c0.20	0.52	c0.38		0.24	c0.48
v/s Ratio Perm				0.04		
v/c Ratio	2.33	1.06	1.25	0.14	0.79	1.56
Uniform Delay, d1	27.0	15.0	20.5	14.9	18.8	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	619.2	39.0	122.0	0.6	8.1	262.1
Delay (s)	646.2	54.0	142.5	15.5	26.9	282.6
Level of Service	F	D	F	B	C	F
Approach Delay (s)		149.1	124.6		201.4	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	155.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	898	1097	407	1280	184	469
Future Volume (vph)	898	1097	407	1280	184	469
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1568	1787	3539	1636	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1568	1787	3539	1636	1583
Peak-hour factor, PHF	0.89	0.89	0.86	0.86	0.88	0.88
Adj. Flow (vph)	1009	1233	473	1488	209	533
RTOR Reduction (vph)	0	376	0	0	0	436
Lane Group Flow (vph)	1009	857	473	1488	209	97
Heavy Vehicles (%)	2%	3%	1%	2%	14%	2%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	52.7	52.7	42.3	101.0	25.0	25.0
Effective Green, g (s)	52.7	52.7	42.3	101.0	25.0	25.0
Actuated g/C Ratio	0.38	0.38	0.31	0.73	0.18	0.18
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1351	598	547	2590	296	286
v/s Ratio Prot	0.29	c0.55	c0.26	0.42	c0.13	0.06
v/s Ratio Perm						
v/c Ratio	0.75	1.43	0.86	0.57	0.71	0.34
Uniform Delay, d1	36.9	42.6	45.2	8.6	53.1	49.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	204.5	13.8	0.9	8.0	1.0
Delay (s)	40.7	247.2	58.9	9.5	61.0	50.2
Level of Service	D	F	E	A	E	D
Approach Delay (s)	154.2			21.4	53.3	
Approach LOS	F			C	D	

Intersection Summary			
HCM 2000 Control Delay	86.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	66.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	62	79	21	221	21	17	2	296	222	63	96	3
Future Vol, veh/h	62	79	21	221	21	17	2	296	222	63	96	3
Peak Hour Factor	0.71	0.71	0.71	0.90	0.90	0.90	0.75	0.75	0.75	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	2	0	10	0	1	3	11	4	0
Mvmt Flow	87	111	30	246	23	19	3	395	296	72	109	3
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	17.4	19.7	116	15.5
HCM LOS	C	C	F	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	38%	100%	0%	39%
Vol Thru, %	57%	49%	0%	55%	59%
Vol Right, %	43%	13%	0%	45%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	520	162	221	38	162
LT Vol	2	62	221	0	63
Through Vol	296	79	0	21	96
RT Vol	222	21	0	17	3
Lane Flow Rate	693	228	246	42	184
Geometry Grp	2	5	7	7	2
Degree of Util (X)	1.171	0.461	0.548	0.084	0.376
Departure Headway (Hd)	6.079	7.884	8.602	7.727	7.846
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	603	461	422	467	462
Service Time	4.079	5.884	6.302	5.427	5.846
HCM Lane V/C Ratio	1.149	0.495	0.583	0.09	0.398
HCM Control Delay	116	17.4	21.2	11.1	15.5
HCM Lane LOS	F	C	C	B	C
HCM 95th-tile Q	23.7	2.4	3.2	0.3	1.7

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	7	60	7	34	12	417	48	19	354	17
Future Vol, veh/h	5	10	7	60	7	34	12	417	48	19	354	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	87	87	87	73	73	73	90	90	90
Heavy Vehicles, %	0	0	25	3	25	0	0	3	0	0	1	0
Mvmt Flow	8	15	11	69	8	39	16	571	66	21	393	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1105	1114	403	1094	1090	604	412	0	0	637	0	0
Stage 1	445	445	-	636	636	-	-	-	-	-	-	-
Stage 2	660	669	-	458	454	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.13	6.75	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.527	4.225	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	190	210	600	191	196	502	1158	-	-	956	-	-
Stage 1	596	578	-	464	438	-	-	-	-	-	-	-
Stage 2	455	459	-	581	532	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	165	202	600	172	189	502	1158	-	-	956	-	-
Mov Cap-2 Maneuver	165	202	-	172	189	-	-	-	-	-	-	-
Stage 1	588	565	-	458	432	-	-	-	-	-	-	-
Stage 2	406	453	-	543	520	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.4	31.6	0.2	0.4
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1158	-	-	241	174	502	956	-	-
HCM Lane V/C Ratio	0.014	-	-	0.14	0.443	0.078	0.022	-	-
HCM Control Delay (s)	8.2	-	-	22.4	41.2	12.8	8.9	-	-
HCM Lane LOS	A	-	-	C	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	2	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	14.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	15	5	235	10	5	0	165	95	5	410	5
Future Vol, veh/h	5	15	5	235	10	5	0	165	95	5	410	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	17	6	261	11	6	0	183	106	6	456	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	716	760	459	719	710	236	462	0	0	289	0	0
Stage 1	471	471	-	236	236	-	-	-	-	-	-	-
Stage 2	245	289	-	483	474	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	345	336	602	344	359	803	1099	-	-	1273	-	-
Stage 1	573	560	-	767	710	-	-	-	-	-	-	-
Stage 2	759	673	-	565	558	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	333	334	602	326	357	803	1099	-	-	1273	-	-
Mov Cap-2 Maneuver	333	334	-	326	357	-	-	-	-	-	-	-
Stage 1	573	557	-	767	710	-	-	-	-	-	-	-
Stage 2	742	673	-	540	555	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.6	53.3	0	0.1
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1099	-	-	366	331	1273	-	-
HCM Lane V/C Ratio	-	-	-	0.076	0.839	0.004	-	-
HCM Control Delay (s)	0	-	-	15.6	53.3	7.8	0	-
HCM Lane LOS	A	-	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	7.4	0	-	-

Intersection						
Int Delay, s/veh	7.1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	230	105	180	30	25	625
Future Vol, veh/h	230	105	180	30	25	625
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	256	117	200	33	28	694

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	461	28	722	0	-	0
Stage 1	28	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	559	1047	880	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	432	1047	880	-	-	-
Mov Cap-2 Maneuver	432	-	-	-	-	-
Stage 1	769	-	-	-	-	-
Stage 2	654	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.7	8.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	880	-	432	1047	-	-
HCM Lane V/C Ratio	0.227	-	0.592	0.111	-	-
HCM Control Delay (s)	10.3	-	24.7	8.9	-	-
HCM Lane LOS	B	-	C	A	-	-
HCM 95th %tile Q(veh)	0.9	-	3.7	0.4	-	-

Intersection						
Int Delay, s/veh	6.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	139	22	426	958	2
Future Vol, veh/h	2	139	22	426	958	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	85	85	89	89
Heavy Vehicles, %	0	1	0	1	1	0
Mvmt Flow	3	204	26	501	1076	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1630	1077	1078	0	-	0
Stage 1	1077	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	113	267	655	-	-	-
Stage 1	330	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	107	267	655	-	-	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	312	-	-	-	-	-
Stage 2	580	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	56.6	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	655	-	261	-	-
HCM Lane V/C Ratio	0.04	-	0.794	-	-
HCM Control Delay (s)	10.7	0	56.6	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.1	-	6.1	-	-

Intersection												
Int Delay, s/veh	25.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	27	46	0	12	63	435	74	15	1108	24
Future Vol, veh/h	9	0	27	46	0	12	63	435	74	15	1108	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	83	83	83	94	94	94	89	89	89
Heavy Vehicles, %	0	0	0	12	0	29	0	1	12	22	1	0
Mvmt Flow	14	0	43	55	0	14	67	463	79	17	1245	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1937	1969	1259	1951	1943	503	1272	0	0	542	0	0
Stage 1	1293	1293	-	637	637	-	-	-	-	-	-	-
Stage 2	644	676	-	1314	1306	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.22	6.5	6.49	4.1	-	-	4.32	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.608	4	3.561	2.2	-	-	2.398	-	-
Pot Cap-1 Maneuver	50	63	210	~ 45	66	518	553	-	-	933	-	-
Stage 1	202	235	-	449	475	-	-	-	-	-	-	-
Stage 2	465	456	-	185	232	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	40	49	210	~ 30	51	518	553	-	-	933	-	-
Mov Cap-2 Maneuver	40	49	-	~ 30	51	-	-	-	-	-	-	-
Stage 1	167	220	-	370	392	-	-	-	-	-	-	-
Stage 2	373	376	-	138	217	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	78.1	$ 652.5	1.4	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	553	-	-	102	37	933	-	-
HCM Lane V/C Ratio	0.121	-	-	0.56	1.889	0.018	-	-
HCM Control Delay (s)	12.4	0	-	78.1	$ 652.5	8.9	0	-
HCM Lane LOS	B	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.4	-	-	2.6	7.6	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	56	516	0	0	1181
Future Vol, veh/h	0	56	516	0	0	1181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	100	100	92	92	100
Heavy Vehicles, %	2	13	1	2	2	1
Mvmt Flow	0	56	516	0	0	1181

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	516	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.395	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.4235	-	-	-	-
Pot Cap-1 Maneuver	0	532	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	532	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	532	-
HCM Lane V/C Ratio	-	0.105	-
HCM Control Delay (s)	-	12.6	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	130	7	1058	588	134	7	2	289	5	0	0
Future Volume (vph)	0	130	7	1058	588	134	7	2	289	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		0.95		0.97	0.95			1.00	0.88		1.00	
Frt		0.99		1.00	0.97			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.96	1.00		0.95	
Satd. Flow (prot)		3367		3433	3440			1491	2760		2046	
Flt Permitted		1.00		0.95	1.00			0.86	1.00		0.75	
Satd. Flow (perm)		3367		3433	3440			1326	2760		1614	
Peak-hour factor, PHF	0.71	0.71	0.71	0.73	0.73	0.73	0.78	0.78	0.78	0.75	0.75	0.75
Adj. Flow (vph)	0	183	10	1449	805	184	9	3	371	7	0	0
RTOR Reduction (vph)	0	4	0	0	7	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	189	0	1449	982	0	0	12	371	0	7	0
Heavy Vehicles (%)	0%	4%	50%	2%	2%	2%	25%	0%	3%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		10.8		49.0	65.8			17.5	17.5		17.5	
Effective Green, g (s)		10.8		49.0	65.8			17.5	17.5		17.5	
Actuated g/C Ratio		0.11		0.51	0.69			0.18	0.18		0.18	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		381		1765	2375			243	506		296	
v/s Ratio Prot		0.06		c0.42	c0.29							
v/s Ratio Perm								0.01	c0.13		0.00	
v/c Ratio		0.50		0.82	0.41			0.05	0.73		0.02	
Uniform Delay, d1		39.7		19.5	6.4			32.0	36.7		31.9	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		1.0		3.2	0.1			0.1	5.4		0.0	
Delay (s)		40.7		22.7	6.5			32.1	42.1		31.9	
Level of Service		D		C	A			C	D		C	
Approach Delay (s)		40.7			16.1			41.8			31.9	
Approach LOS		D			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	95.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	290	134	159	998	0	0	0	0	559	0	826
Future Volume (vph)	0	290	134	159	998	0	0	0	0	559	0	826
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5981	1419	2918	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5981	1419	2918	3455					3502		2814
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	0	362	168	199	1248	0	0	0	0	745	0	1101
RTOR Reduction (vph)	0	0	112	0	0	0	0	0	0	0	0	109
Lane Group Flow (vph)	0	363	56	199	1248	0	0	0	0	745	0	992
Heavy Vehicles (%)	0%	2%	10%	12%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		33.6	33.6	25.0	64.6					25.0		25.0
Effective Green, g (s)		33.6	33.6	25.0	64.6					25.0		25.0
Actuated g/C Ratio		0.33	0.33	0.25	0.64					0.25		0.25
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		1977	469	718	2196					861		692
v/s Ratio Prot		0.06	0.04	0.07	c0.36					0.21		c0.35
v/s Ratio Perm												
v/c Ratio		0.18	0.12	0.28	0.57					0.87		1.43
Uniform Delay, d1		24.2	23.7	31.0	10.5					36.7		38.3
Progression Factor		1.00	1.00	0.87	1.63					1.00		1.00
Incremental Delay, d2		0.1	0.2	0.1	0.2					9.8		203.6
Delay (s)		24.3	23.9	27.2	17.4					46.5		241.9
Level of Service		C	C	C	B					D		F
Approach Delay (s)		24.2			18.8			0.0			163.1	
Approach LOS		C			B			A			F	

Intersection Summary			
HCM 2000 Control Delay	89.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	101.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	734	0	0	383	78	774	0	370	0	0	0
Future Volume (vph)	115	734	0	0	383	78	774	0	370	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.97		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3113	3421			4660		3433		2733			
Flt Permitted	0.44	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1439	3421			4660		3433		2733			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.85	0.85	0.78	0.92	0.78	0.92	0.92	0.92
Adj. Flow (vph)	132	844	0	0	451	92	992	0	474	0	0	0
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	355	0	0	0
Lane Group Flow (vph)	132	844	0	0	516	0	992	0	119	0	0	0
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	2%	4%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	50.6	33.6			41.6		25.0		25.0			
Effective Green, g (s)	50.6	33.6			41.6		25.0		25.0			
Actuated g/C Ratio	0.50	0.33			0.41		0.25		0.25			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	996	1131			1908		844		672			
v/s Ratio Prot	c0.02	c0.25			c0.11		c0.29		0.04			
v/s Ratio Perm	0.04											
v/c Ratio	0.13	0.75			0.27		1.18		0.18			
Uniform Delay, d1	13.4	30.2			19.9		38.3		30.2			
Progression Factor	1.13	1.27			1.00		1.00		1.00			
Incremental Delay, d2	0.1	2.5			0.2		91.3		0.3			
Delay (s)	15.2	40.9			20.1		129.6		30.5			
Level of Service	B	D			C		F		C			
Approach Delay (s)		37.4			20.1			97.5			0.0	
Approach LOS		D			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	63.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	101.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1107	562	2116	225	303	617
Future Volume (vph)	1107	562	2116	225	303	617
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3303	1599	4988	1229	3242	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3303	1599	4988	1229	3242	3374
Peak-hour factor, PHF	0.87	0.87	0.93	0.93	0.81	0.81
Adj. Flow (vph)	1272	646	2275	242	374	762
RTOR Reduction (vph)	0	319	0	155	0	0
Lane Group Flow (vph)	1272	327	2275	87	374	762
Heavy Vehicles (%)	6%	1%	4%	27%	8%	7%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	33.4	33.4	16.6	56.0
Effective Green, g (s)	25.0	25.0	33.4	33.4	16.6	56.0
Actuated g/C Ratio	0.27	0.27	0.36	0.36	0.18	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	887	429	1791	441	578	2031
v/s Ratio Prot	c0.39	0.20	c0.46	0.07	c0.12	0.23
v/s Ratio Perm						
v/c Ratio	1.43	0.76	1.27	0.20	0.65	0.38
Uniform Delay, d1	34.0	31.3	29.8	20.6	35.5	9.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	201.8	8.3	126.2	1.0	2.8	0.5
Delay (s)	235.8	39.6	156.0	21.6	38.3	10.0
Level of Service	F	D	F	C	D	B
Approach Delay (s)	169.7		143.0			19.3
Approach LOS	F		F			B

Intersection Summary			
HCM 2000 Control Delay	127.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	627	2051	739	552	152	181
Future Volume (vph)	627	2051	739	552	152	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3471	3343	1583	1719	1538
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3471	3343	1583	1719	1538
Peak-hour factor, PHF	0.86	0.86	0.96	0.96	0.76	0.76
Adj. Flow (vph)	729	2385	770	575	200	238
RTOR Reduction (vph)	0	0	0	400	0	185
Lane Group Flow (vph)	729	2385	770	175	200	53
Heavy Vehicles (%)	1%	4%	8%	2%	5%	5%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	9.8	33.8	18.0	18.0	13.2	13.2
Effective Green, g (s)	9.8	33.8	18.0	18.0	13.2	13.2
Actuated g/C Ratio	0.17	0.57	0.31	0.31	0.22	0.22
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	296	1988	1019	482	384	344
v/s Ratio Prot	c0.41	c0.69	0.23		c0.12	0.03
v/s Ratio Perm				0.11		
v/c Ratio	2.46	1.20	0.76	0.36	0.52	0.15
Uniform Delay, d1	24.6	12.6	18.5	16.0	20.1	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	668.4	95.0	5.2	2.1	1.7	0.3
Delay (s)	693.0	107.6	23.7	18.1	21.8	18.7
Level of Service	F	F	C	B	C	B
Approach Delay (s)		244.6	21.3		20.1	
Approach LOS		F	C		C	

Intersection Summary			
HCM 2000 Control Delay	163.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1415	788	111	801	490	709
Future Volume (vph)	1415	788	111	801	490	709
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1468	1752	3438	1680	1538
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1468	1752	3438	1680	1538
Peak-hour factor, PHF	0.95	0.95	0.90	0.90	0.80	0.80
Adj. Flow (vph)	1489	829	123	890	612	886
RTOR Reduction (vph)	0	445	0	0	0	388
Lane Group Flow (vph)	1489	384	123	890	613	498
Heavy Vehicles (%)	2%	10%	3%	5%	11%	5%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	64.0	64.0	16.0	86.0	40.0	40.0
Effective Green, g (s)	64.0	64.0	16.0	86.0	40.0	40.0
Actuated g/C Ratio	0.46	0.46	0.12	0.62	0.29	0.29
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1641	680	203	2142	486	445
v/s Ratio Prot	c0.42	0.26	c0.07	0.26	c0.36	0.32
v/s Ratio Perm						
v/c Ratio	0.91	0.57	0.61	0.42	1.26	1.12
Uniform Delay, d1	34.3	26.9	58.0	13.2	49.0	49.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.9	3.4	5.8	0.6	133.4	79.5
Delay (s)	43.1	30.3	63.8	13.8	182.4	128.5
Level of Service	D	C	E	B	F	F
Approach Delay (s)	38.5			19.9	150.5	
Approach LOS	D			B	F	

Intersection Summary			
HCM 2000 Control Delay	69.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	34.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	28	9	273	120	111	21	100	99	26	286	33
Future Vol, veh/h	0	28	9	273	120	111	21	100	99	26	286	33
Peak Hour Factor	0.50	0.50	0.50	0.70	0.70	0.70	0.87	0.87	0.87	0.70	0.70	0.70
Heavy Vehicles, %	0	0	0	2	0	5	0	6	8	14	0	0
Mvmt Flow	0	56	18	390	171	159	24	115	114	37	409	47
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	12.8	31.1	16.8	51
HCM LOS	B	D	C	F

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	10%	0%	100%	0%	8%
Vol Thru, %	45%	76%	0%	52%	83%
Vol Right, %	45%	24%	0%	48%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	220	37	273	231	345
LT Vol	21	0	273	0	26
Through Vol	100	28	0	120	286
RT Vol	99	9	0	111	33
Lane Flow Rate	253	74	390	330	493
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.493	0.166	0.841	0.63	0.935
Departure Headway (Hd)	7.017	8.059	7.766	6.873	6.832
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	513	443	468	525	532
Service Time	5.072	6.142	5.519	4.626	4.875
HCM Lane V/C Ratio	0.493	0.167	0.833	0.629	0.927
HCM Control Delay	16.8	12.8	39.9	20.7	51
HCM Lane LOS	C	B	E	C	F
HCM 95th-tile Q	2.7	0.6	8.3	4.3	11.6

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	11	13	35	5	21	35	238	44	46	428	44
Future Vol, veh/h	7	11	13	35	5	21	35	238	44	46	428	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	83	83	83	79	79	79	66	66	66
Heavy Vehicles, %	25	0	14	0	33	9	0	4	0	4	1	4
Mvmt Flow	10	15	18	42	6	25	44	301	56	70	648	67

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1255	1267	682	1255	1272	329	715	0	0	357	0	0
Stage 1	822	822	-	417	417	-	-	-	-	-	-	-
Stage 2	433	445	-	838	855	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.34	7.1	6.83	6.29	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.426	3.5	4.297	3.381	2.2	-	-	2.236	-	-
Pot Cap-1 Maneuver	133	170	430	150	146	697	895	-	-	1191	-	-
Stage 1	337	391	-	617	541	-	-	-	-	-	-	-
Stage 2	559	578	-	364	335	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	114	152	430	122	131	697	895	-	-	1191	-	-
Mov Cap-2 Maneuver	114	152	-	122	131	-	-	-	-	-	-	-
Stage 1	320	368	-	587	514	-	-	-	-	-	-	-
Stage 2	506	550	-	314	315	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.7	37.7	1	0.7
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	895	-	-	189	123	697	1191	-	-
HCM Lane V/C Ratio	0.05	-	-	0.231	0.392	0.036	0.059	-	-
HCM Control Delay (s)	9.2	-	-	29.7	52	10.4	8.2	-	-
HCM Lane LOS	A	-	-	D	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.9	1.6	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	5	41	10	10	5	309	258	15	134	15
Future Vol, veh/h	5	10	5	41	10	10	5	309	258	15	134	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	11	6	46	11	11	6	343	287	17	149	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	702	834	158	699	699	487	166	0	0	630	0	0
Stage 1	192	192	-	499	499	-	-	-	-	-	-	-
Stage 2	510	642	-	200	200	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	353	304	887	354	364	581	1412	-	-	952	-	-
Stage 1	810	742	-	554	544	-	-	-	-	-	-	-
Stage 2	546	469	-	802	736	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	331	296	887	335	354	581	1412	-	-	952	-	-
Mov Cap-2 Maneuver	331	296	-	335	354	-	-	-	-	-	-	-
Stage 1	804	727	-	550	540	-	-	-	-	-	-	-
Stage 2	521	466	-	769	721	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.4	17.2	0.1	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1412	-	-	367	363	952	-	-
HCM Lane V/C Ratio	0.004	-	-	0.061	0.187	0.018	-	-
HCM Control Delay (s)	7.6	0	-	15.4	17.2	8.8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.7	0.1	-	-

Intersection	
Int Delay, s/veh	13

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	563	227	26	9	41	149
Future Vol, veh/h	563	227	26	9	41	149
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	626	252	29	10	46	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	114	46	212	0	-	0
Stage 1	46	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	882	1023	1358	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	863	1023	1358	-	-	-
Mov Cap-2 Maneuver	863	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.5	5.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1358	-	863	1023	-	-
HCM Lane V/C Ratio	0.021	-	0.725	0.247	-	-
HCM Control Delay (s)	7.7	-	19.3	9.7	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	6.5	1	-	-

Intersection						
Int Delay, s/veh	1.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	188	1089	292	0
Future Vol, veh/h	0	19	188	1089	292	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	67	67	75	75
Heavy Vehicles, %	2	2	1	2	2	0
Mvmt Flow	0	38	281	1625	389	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2576	389	389	0	-	0
Stage 1	389	-	-	-	-	-
Stage 2	2187	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	28	659	1175	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	92	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	659	1175	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	92	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	1.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1175	-	659	-	-
HCM Lane V/C Ratio	0.239	-	0.058	-	-
HCM Control Delay (s)	9	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.9	-	0.2	-	-

Intersection	
Int Delay, s/veh	28.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	36	0	4	33	1273	78	11	292	0
Future Vol, veh/h	0	0	5	36	0	4	33	1273	78	11	292	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	71	71	71	71	71	71	70	70	70
Heavy Vehicles, %	0	0	33	17	0	50	6	1	7	17	3	0
Mvmt Flow	0	0	13	51	0	6	46	1793	110	16	417	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2392	2444	417	2396	2389	1848	417	0	0	1903	0	0
Stage 1	449	449	-	1940	1940	-	-	-	-	-	-	-
Stage 2	1943	1995	-	456	449	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.53	7.27	6.5	6.7	4.16	-	-	4.27	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.597	3.653	4	3.75	2.254	-	-	2.353	-	-
Pot Cap-1 Maneuver	24	32	574	~ 21	34	69	1121	-	-	280	-	-
Stage 1	593	576	-	77	113	-	-	-	-	-	-	-
Stage 2	85	106	-	556	576	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	21	30	574	~ 19	31	69	1121	-	-	280	-	-
Mov Cap-2 Maneuver	21	30	-	~ 19	31	-	-	-	-	-	-	-
Stage 1	593	533	-	77	113	-	-	-	-	-	-	-
Stage 2	78	106	-	503	533	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	$ 1222.5	0.2	0.7
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1121	-	-	574	20	280	-	-
HCM Lane V/C Ratio	0.041	-	-	0.023	2.817	0.056	-	-
HCM Control Delay (s)	8.3	0	-	11.4	$ 1222.5	18.6	0	-
HCM Lane LOS	A	A	-	B	F	C	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	7.4	0.2	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	28.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	205	1179	0	0	333
Future Vol, veh/h	0	205	1179	0	0	333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	76	95	92	92	80
Heavy Vehicles, %	2	3	2	2	2	4
Mvmt Flow	0	270	1241	0	0	416

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1241	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.245	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3285	-	-	-	-
Pot Cap-1 Maneuver	0	~ 211	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	~ 211	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	201.9	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	211	-
HCM Lane V/C Ratio	-	1.278	-
HCM Control Delay (s)	-	201.9	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	14.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	441	7	37	253	307	10	0	1184	102	15	3
Future Volume (vph)	5	441	7	37	253	307	10	0	1184	102	15	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95		0.97	0.95			1.00	0.88		1.00	
Frt	1.00	1.00		1.00	0.92			1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	
Satd. Flow (prot)	1357	3532		3155	3298			1491	2842		2058	
Flt Permitted	0.95	1.00		0.95	1.00			0.70	1.00		0.75	
Satd. Flow (perm)	1357	3532		3155	3298			1100	2842		1612	
Peak-hour factor, PHF	0.69	0.69	0.69	0.88	0.88	0.88	0.93	0.93	0.93	0.81	0.81	0.81
Adj. Flow (vph)	7	639	10	42	288	349	11	0	1273	126	19	4
RTOR Reduction (vph)	0	1	0	0	164	0	0	0	0	0	1	0
Lane Group Flow (vph)	7	648	0	42	473	0	0	11	1273	0	148	0
Heavy Vehicles (%)	33%	2%	0%	11%	1%	0%	17%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	2.4	17.5		5.1	21.2			21.0	21.0		21.0	
Effective Green, g (s)	2.4	17.5		5.1	21.2			21.0	21.0		21.0	
Actuated g/C Ratio	0.04	0.28		0.08	0.34			0.34	0.34		0.34	
Clearance Time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)	2.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	52	1003		261	1135			375	968		549	
v/s Ratio Prot	0.01	c0.18		0.01	c0.14							
v/s Ratio Perm								0.01	c0.45		0.09	
v/c Ratio	0.13	0.65		0.16	0.42			0.03	1.32		0.27	
Uniform Delay, d1	28.6	19.3		26.3	15.5			13.5	20.3		14.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.4	1.4		0.3	0.2			0.0	149.2		0.3	
Delay (s)	29.0	20.8		26.6	15.7			13.5	169.5		15.0	
Level of Service	C	C		C	B			B	F		B	
Approach Delay (s)		20.9			16.4			168.1			15.0	
Approach LOS		C			B			F			B	

Intersection Summary			
HCM 2000 Control Delay	87.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1124	603	691	467	0	0	0	0	393	0	143
Future Volume (vph)	0	1124	603	691	467	0	0	0	0	393	0	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		6040	1546	3236	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		6040	1546	3236	3455					3502		2814
Peak-hour factor, PHF	0.92	0.85	0.85	0.94	0.94	0.92	0.92	0.92	0.92	0.75	0.25	0.75
Adj. Flow (vph)	0	1322	709	735	497	0	0	0	0	524	0	191
RTOR Reduction (vph)	0	0	365	0	0	0	0	0	0	0	0	145
Lane Group Flow (vph)	0	1322	344	735	497	0	0	0	0	524	0	46
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		35.0	35.0	25.0	60.8					24.7		24.7
Effective Green, g (s)		35.0	35.0	25.0	60.8					24.7		24.7
Actuated g/C Ratio		0.34	0.34	0.24	0.59					0.24		0.24
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		2058	526	787	2045					842		676
v/s Ratio Prot		0.22	c0.22	c0.23	0.14					c0.15		0.02
v/s Ratio Perm												
v/c Ratio		0.64	0.65	0.93	0.24					0.62		0.07
Uniform Delay, d1		28.6	28.7	38.0	10.0					34.8		30.1
Progression Factor		1.00	1.00	1.35	1.20					1.00		1.00
Incremental Delay, d2		0.9	3.9	12.7	0.1					2.0		0.1
Delay (s)		29.5	32.6	64.1	12.1					36.9		30.2
Level of Service		C	C	E	B					D		C
Approach Delay (s)		30.6			43.1			0.0			35.1	
Approach LOS		C			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	102.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	679	838	0	0	929	411	229	0	632	0	0	0
Future Volume (vph)	679	838	0	0	929	411	229	0	632	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.95		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3236	3455			4644		3433		2814			
Flt Permitted	0.11	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	389	3455			4644		3433		2814			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.90	0.90	0.94	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	780	963	0	0	1032	457	244	0	672	0	0	0
RTOR Reduction (vph)	0	0	0	0	76	0	0	0	510	0	0	0
Lane Group Flow (vph)	780	963	0	0	1413	0	244	0	162	0	0	0
Heavy Vehicles (%)	1%	1%	2%	2%	1%	0%	2%	2%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	59.2	35.0			35.8		24.7		24.7			
Effective Green, g (s)	59.2	35.0			35.8		24.7		24.7			
Actuated g/C Ratio	0.58	0.34			0.35		0.24		0.24			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	895	1177			1618		825		676			
v/s Ratio Prot	c0.21	0.28			c0.30		c0.07		0.06			
v/s Ratio Perm	0.30											
v/c Ratio	0.87	0.82			0.87		0.30		0.24			
Uniform Delay, d1	27.3	30.9			31.3		31.9		31.4			
Progression Factor	1.62	0.60			1.00		1.00		1.00			
Incremental Delay, d2	7.6	4.0			6.0		0.4		0.4			
Delay (s)	51.9	22.6			37.3		32.3		31.8			
Level of Service	D	C			D		C		C			
Approach Delay (s)		35.7			37.3			31.9			0.0	
Approach LOS		D			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	102.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1052	178	1810	283	690	1437
Future Volume (vph)	1052	178	1810	283	690	1437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1509	5085	1323	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1509	5085	1323	3433	3539
Peak-hour factor, PHF	0.89	0.89	0.95	0.95	0.84	0.84
Adj. Flow (vph)	1182	200	1905	298	821	1711
RTOR Reduction (vph)	0	140	0	202	0	0
Lane Group Flow (vph)	1182	60	1905	96	821	1711
Heavy Vehicles (%)	4%	7%	2%	18%	2%	2%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	30.0	30.0	20.0	56.0
Effective Green, g (s)	25.0	25.0	30.0	30.0	20.0	56.0
Actuated g/C Ratio	0.27	0.27	0.32	0.32	0.22	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	905	405	1640	426	738	2131
v/s Ratio Prot	c0.35	0.04	c0.37	0.07	c0.24	0.48
v/s Ratio Perm						
v/c Ratio	1.31	0.15	1.16	0.23	1.11	0.80
Uniform Delay, d1	34.0	25.9	31.5	23.0	36.5	14.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	145.8	0.2	79.9	1.2	68.4	3.3
Delay (s)	179.8	26.1	111.4	24.2	104.9	17.6
Level of Service	F	C	F	C	F	B
Approach Delay (s)	157.5		99.6			45.9
Approach LOS	F		F			D

Intersection Summary			
HCM 2000 Control Delay	90.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	319	1669	1296	213	386	831
Future Volume (vph)	319	1669	1296	213	386	831
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	3539	1583	1787	1599
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3539	3539	1583	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.93	0.93	0.87	0.87
Adj. Flow (vph)	362	1897	1394	229	444	955
RTOR Reduction (vph)	0	0	0	159	0	166
Lane Group Flow (vph)	363	1897	1394	70	444	789
Heavy Vehicles (%)	1%	2%	2%	2%	1%	1%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	5.0	29.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	5.0	29.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.08	0.49	0.31	0.31	0.31	0.31
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	151	1739	1079	482	545	487
v/s Ratio Prot	c0.20	0.54	c0.39		0.25	c0.49
v/s Ratio Perm				0.04		
v/c Ratio	2.40	1.09	1.29	0.14	0.81	1.62
Uniform Delay, d1	27.0	15.0	20.5	14.9	19.0	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	651.6	50.9	138.4	0.6	9.6	288.3
Delay (s)	678.6	65.9	158.9	15.5	28.5	308.8
Level of Service	F	E	F	B	C	F
Approach Delay (s)		164.3	138.7		219.9	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	171.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.57		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	925	1130	419	1319	190	483
Future Volume (vph)	925	1130	419	1319	190	483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1568	1787	3539	1636	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1568	1787	3539	1636	1583
Peak-hour factor, PHF	0.89	0.89	0.86	0.86	0.88	0.88
Adj. Flow (vph)	1039	1270	487	1534	216	549
RTOR Reduction (vph)	0	383	0	0	0	446
Lane Group Flow (vph)	1039	887	487	1534	216	103
Heavy Vehicles (%)	2%	3%	1%	2%	14%	2%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	50.5	50.5	43.7	100.2	25.8	25.8
Effective Green, g (s)	50.5	50.5	43.7	100.2	25.8	25.8
Actuated g/C Ratio	0.37	0.37	0.32	0.73	0.19	0.19
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1295	573	565	2569	305	295
v/s Ratio Prot	0.29	c0.57	c0.27	0.43	c0.13	0.06
v/s Ratio Perm						
v/c Ratio	0.80	1.55	0.86	0.60	0.71	0.35
Uniform Delay, d1	39.3	43.8	44.3	9.1	52.6	48.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	255.2	13.2	1.0	7.8	1.0
Delay (s)	44.6	298.9	57.5	10.2	60.4	49.8
Level of Service	D	F	E	B	E	D
Approach Delay (s)	184.5			21.6	52.8	
Approach LOS	F			C	D	

Intersection Summary			
HCM 2000 Control Delay	100.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	74.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	81	22	228	22	18	2	305	229	65	99	3
Future Vol, veh/h	64	81	22	228	22	18	2	305	229	65	99	3
Peak Hour Factor	0.71	0.71	0.71	0.90	0.90	0.90	0.75	0.75	0.75	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	2	0	10	0	1	3	11	4	0
Mvmt Flow	90	114	31	253	24	20	3	407	305	74	113	3
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	18.3	20.7	130.9	16.1
HCM LOS	C	C	F	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	38%	100%	0%	39%
Vol Thru, %	57%	49%	0%	55%	59%
Vol Right, %	43%	13%	0%	45%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	536	167	228	40	167
LT Vol	2	64	228	0	65
Through Vol	305	81	0	22	99
RT Vol	229	22	0	18	3
Lane Flow Rate	715	235	253	44	190
Geometry Grp	2	5	7	7	2
Degree of Util (X)	1.209	0.481	0.569	0.089	0.394
Departure Headway (Hd)	6.09	8.047	8.746	7.867	8.019
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	593	452	415	458	452
Service Time	4.188	6.047	6.446	5.567	6.019
HCM Lane V/C Ratio	1.206	0.52	0.61	0.096	0.42
HCM Control Delay	130.9	18.3	22.4	11.3	16.1
HCM Lane LOS	F	C	C	B	C
HCM 95th-tile Q	25.5	2.6	3.4	0.3	1.8

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	7	62	7	35	12	430	49	20	365	18
Future Vol, veh/h	5	10	7	62	7	35	12	430	49	20	365	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	87	87	87	73	73	73	90	90	90
Heavy Vehicles, %	0	0	25	3	25	0	0	3	0	0	1	0
Mvmt Flow	8	15	11	71	8	40	16	589	67	22	406	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1139	1148	416	1128	1125	623	426	0	0	656	0	0
Stage 1	460	460	-	655	655	-	-	-	-	-	-	-
Stage 2	679	688	-	473	470	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.13	6.75	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.527	4.225	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	180	200	590	181	186	490	1144	-	-	941	-	-
Stage 1	585	569	-	453	429	-	-	-	-	-	-	-
Stage 2	445	450	-	570	523	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	155	193	590	162	179	490	1144	-	-	941	-	-
Mov Cap-2 Maneuver	155	193	-	162	179	-	-	-	-	-	-	-
Stage 1	577	556	-	447	423	-	-	-	-	-	-	-
Stage 2	395	444	-	531	511	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.4	34.9	0.2	0.4
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1144	-	-	229	164	490	941	-	-
HCM Lane V/C Ratio	0.014	-	-	0.148	0.484	0.082	0.024	-	-
HCM Control Delay (s)	8.2	-	-	23.4	46	13	8.9	-	-
HCM Lane LOS	A	-	-	C	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	2.3	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	17.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	15	5	242	10	5	0	170	98	5	422	5
Future Vol, veh/h	5	15	5	242	10	5	0	170	98	5	422	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	17	6	269	11	6	0	189	109	6	469	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	736	782	472	740	731	244	475	0	0	298	0	0
Stage 1	484	484	-	244	244	-	-	-	-	-	-	-
Stage 2	252	298	-	496	487	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	335	326	592	333	349	795	1087	-	-	1263	-	-
Stage 1	564	552	-	760	704	-	-	-	-	-	-	-
Stage 2	752	667	-	556	550	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	323	324	592	315	347	795	1087	-	-	1263	-	-
Mov Cap-2 Maneuver	323	324	-	315	347	-	-	-	-	-	-	-
Stage 1	564	549	-	760	704	-	-	-	-	-	-	-
Stage 2	735	667	-	531	547	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	63.5	0	0.1
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1087	-	-	356	320	1263	-	-
HCM Lane V/C Ratio	-	-	-	0.078	0.892	0.004	-	-
HCM Control Delay (s)	0	-	-	16	63.5	7.9	0	-
HCM Lane LOS	A	-	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	8.4	0	-	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	237	108	185	31	26	644
Future Vol, veh/h	237	108	185	31	26	644
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	263	120	206	34	29	716

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	475	29	745	0	-	0
Stage 1	29	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	548	1046	863	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	417	1046	863	-	-	-
Mov Cap-2 Maneuver	417	-	-	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.5	9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	863	-	417	1046	-	-
HCM Lane V/C Ratio	0.238	-	0.631	0.115	-	-
HCM Control Delay (s)	10.5	-	27.3	8.9	-	-
HCM Lane LOS	B	-	D	A	-	-
HCM 95th %tile Q(veh)	0.9	-	4.2	0.4	-	-

Intersection						
Int Delay, s/veh	7.8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	143	23	439	987	2
Future Vol, veh/h	2	143	23	439	987	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	85	85	89	89
Heavy Vehicles, %	0	1	0	1	1	0
Mvmt Flow	3	210	27	516	1109	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1680	1110	1111	0	-	0
Stage 1	1110	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	105	256	636	-	-	-
Stage 1	318	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	99	256	636	-	-	-
Mov Cap-2 Maneuver	99	-	-	-	-	-
Stage 1	299	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	66.9	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	636	-	251	-	-
HCM Lane V/C Ratio	0.043	-	0.85	-	-
HCM Control Delay (s)	10.9	0	66.9	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.1	-	6.9	-	-

Intersection	
Int Delay, s/veh	31.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	28	47	0	12	65	449	76	15	1142	25
Future Vol, veh/h	9	0	28	47	0	12	65	449	76	15	1142	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	83	83	83	94	94	94	89	89	89
Heavy Vehicles, %	0	0	0	12	0	29	0	1	12	22	1	0
Mvmt Flow	14	0	44	57	0	14	69	478	81	17	1283	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1995	2028	1297	2010	2002	519	1311	0	0	559	0	0
Stage 1	1331	1331	-	657	657	-	-	-	-	-	-	-
Stage 2	664	697	-	1353	1345	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.22	6.5	6.49	4.1	-	-	4.32	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.608	4	3.561	2.2	-	-	2.398	-	-
Pot Cap-1 Maneuver	46	58	200	~ 41	60	507	534	-	-	919	-	-
Stage 1	192	226	-	438	465	-	-	-	-	-	-	-
Stage 2	453	446	-	176	222	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	36	44	200	~ 26	45	507	534	-	-	919	-	-
Mov Cap-2 Maneuver	36	44	-	~ 26	45	-	-	-	-	-	-	-
Stage 1	156	210	-	355	377	-	-	-	-	-	-	-
Stage 2	356	361	-	127	207	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	90.9	$ 825.9	1.4	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	534	-	-	95	32	919	-	-
HCM Lane V/C Ratio	0.129	-	-	0.618	2.221	0.018	-	-
HCM Control Delay (s)	12.7	0	-	90.9	$ 825.9	9	0	-
HCM Lane LOS	B	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.4	-	-	2.9	8.2	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	0.4					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	58	532	0	0	1217
Future Vol, veh/h	0	58	532	0	0	1217
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	100	100	92	92	100
Heavy Vehicles, %	2	13	1	2	2	1
Mvmt Flow	0	58	532	0	0	1217

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	532	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.395	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.4235	-	-	-	-
Pot Cap-1 Maneuver	0	521	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	521	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	521	-
HCM Lane V/C Ratio	-	0.111	-
HCM Control Delay (s)	-	12.8	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	143	8	1504	650	148	8	2	465	6	0	0
Future Volume (vph)	0	143	8	1504	650	148	8	2	465	6	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		0.95		0.97	0.95			1.00	0.88		1.00	
Frt		0.99		1.00	0.97			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.96	1.00		0.95	
Satd. Flow (prot)		3367		3433	3441			1483	2760		2046	
Flt Permitted		1.00		0.95	1.00			0.86	1.00		0.75	
Satd. Flow (perm)		3367		3433	3441			1322	2760		1613	
Peak-hour factor, PHF	0.71	0.71	0.71	0.73	0.73	0.73	0.78	0.78	0.78	0.75	0.75	0.75
Adj. Flow (vph)	0	201	11	2060	890	203	10	3	596	8	0	0
RTOR Reduction (vph)	0	4	0	0	7	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	208	0	2060	1086	0	0	13	596	0	8	0
Heavy Vehicles (%)	0%	4%	50%	2%	2%	2%	25%	0%	3%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		11.5		50.0	67.5			20.0	20.0		20.0	
Effective Green, g (s)		11.5		50.0	67.5			20.0	20.0		20.0	
Actuated g/C Ratio		0.12		0.50	0.68			0.20	0.20		0.20	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		389		1725	2334			265	554		324	
v/s Ratio Prot		0.06		c0.60	c0.32							
v/s Ratio Perm								0.01	c0.22		0.00	
v/c Ratio		0.54		1.19	0.47			0.05	1.08		0.02	
Uniform Delay, d1		41.5		24.8	7.5			32.1	39.8		31.9	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		1.4		93.4	0.1			0.1	60.2		0.0	
Delay (s)		42.9		118.1	7.7			32.2	100.0		31.9	
Level of Service		D		F	A			C	F		C	
Approach Delay (s)		42.9			79.8			98.5			31.9	
Approach LOS		D			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	80.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	99.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	422	192	175	1304	0	0	0	0	618	0	1047
Future Volume (vph)	0	422	192	175	1304	0	0	0	0	618	0	1047
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5981	1419	2918	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5981	1419	2918	3455					3502		2814
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	0	528	240	219	1630	0	0	0	0	824	0	1396
RTOR Reduction (vph)	0	0	158	0	0	0	0	0	0	0	0	72
Lane Group Flow (vph)	0	528	82	219	1630	0	0	0	0	824	0	1324
Heavy Vehicles (%)	0%	2%	10%	12%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		35.0	35.0	25.0	66.0					25.0		25.0
Effective Green, g (s)		35.0	35.0	25.0	66.0					25.0		25.0
Actuated g/C Ratio		0.34	0.34	0.24	0.64					0.24		0.24
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		2032	482	708	2213					850		683
v/s Ratio Prot		0.09	0.06	0.08	c0.47					0.24		c0.47
v/s Ratio Perm												
v/c Ratio		0.26	0.17	0.31	0.74					0.97		1.94
Uniform Delay, d1		24.6	23.8	31.9	12.6					38.6		39.0
Progression Factor		1.00	1.00	0.90	1.53					1.00		1.00
Incremental Delay, d2		0.1	0.3	0.0	0.1					23.7		427.7
Delay (s)		24.8	24.2	28.9	19.4					62.3		466.7
Level of Service		C	C	C	B					E		F
Approach Delay (s)		24.6			20.6			0.0			316.6	
Approach LOS		C			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	157.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	854	0	0	524	86	955	0	409	0	0	0
Future Volume (vph)	186	854	0	0	524	86	955	0	409	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.98		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3113	3421			4685		3433		2733			
Flt Permitted	0.37	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1204	3421			4685		3433		2733			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.85	0.85	0.78	0.92	0.78	0.92	0.92	0.92
Adj. Flow (vph)	214	982	0	0	616	101	1224	0	524	0	0	0
RTOR Reduction (vph)	0	0	0	0	19	0	0	0	320	0	0	0
Lane Group Flow (vph)	214	982	0	0	698	0	1224	0	204	0	0	0
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	2%	4%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	52.0	35.0			43.0		25.0		25.0			
Effective Green, g (s)	52.0	35.0			43.0		25.0		25.0			
Actuated g/C Ratio	0.50	0.34			0.42		0.24		0.24			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	922	1162			1955		833		663			
v/s Ratio Prot	c0.04	c0.29			c0.15		c0.36		0.07			
v/s Ratio Perm	0.08											
v/c Ratio	0.23	0.85			0.36		1.47		0.31			
Uniform Delay, d1	13.6	31.5			20.5		39.0		31.9			
Progression Factor	1.05	1.16			1.00		1.00		1.00			
Incremental Delay, d2	0.1	4.7			0.2		217.8		0.6			
Delay (s)	14.3	41.2			20.8		256.8		32.5			
Level of Service	B	D			C		F		C			
Approach Delay (s)		36.4			20.8			189.5			0.0	
Approach LOS		D			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	106.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1222	620	2337	248	378	681
Future Volume (vph)	1222	620	2337	248	378	681
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3303	1599	4988	1229	3242	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3303	1599	4988	1229	3242	3374
Peak-hour factor, PHF	0.87	0.87	0.93	0.93	0.81	0.81
Adj. Flow (vph)	1405	713	2513	267	467	841
RTOR Reduction (vph)	0	319	0	176	0	0
Lane Group Flow (vph)	1405	394	2513	91	467	841
Heavy Vehicles (%)	6%	1%	4%	27%	8%	7%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	31.7	31.7	18.3	56.0
Effective Green, g (s)	25.0	25.0	31.7	31.7	18.3	56.0
Actuated g/C Ratio	0.27	0.27	0.34	0.34	0.20	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	887	429	1700	418	637	2031
v/s Ratio Prot	c0.43	0.25	c0.50	0.07	c0.14	0.25
v/s Ratio Perm						
v/c Ratio	1.58	0.92	1.48	0.22	0.73	0.41
Uniform Delay, d1	34.0	33.0	30.7	21.8	35.1	9.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	268.2	24.8	218.4	1.2	4.6	0.6
Delay (s)	302.2	57.8	249.1	23.0	39.7	10.4
Level of Service	F	E	F	C	D	B
Approach Delay (s)	219.9		227.4			20.9
Approach LOS	F		F			C

Intersection Summary			
HCM 2000 Control Delay	181.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	692	2265	816	669	234	243
Future Volume (vph)	692	2265	816	669	234	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3471	3343	1583	1719	1538
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3471	3343	1583	1719	1538
Peak-hour factor, PHF	0.86	0.86	0.96	0.96	0.76	0.76
Adj. Flow (vph)	805	2634	850	697	308	320
RTOR Reduction (vph)	0	0	0	484	0	189
Lane Group Flow (vph)	805	2634	850	213	308	131
Heavy Vehicles (%)	1%	4%	8%	2%	5%	5%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	7.4	31.4	18.0	18.0	15.6	15.6
Effective Green, g (s)	7.4	31.4	18.0	18.0	15.6	15.6
Actuated g/C Ratio	0.13	0.53	0.31	0.31	0.26	0.26
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	224	1847	1019	482	454	406
v/s Ratio Prot	c0.45	c0.76	0.25		c0.18	0.09
v/s Ratio Perm				0.13		
v/c Ratio	3.59	1.43	0.83	0.44	0.68	0.32
Uniform Delay, d1	25.8	13.8	19.1	16.5	19.5	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1178.2	195.0	8.0	2.9	4.4	0.6
Delay (s)	1204.0	208.8	27.1	19.4	23.8	18.1
Level of Service	F	F	C	B	C	B
Approach Delay (s)		441.7	23.6		20.9	
Approach LOS		F	C		C	

Intersection Summary			
HCM 2000 Control Delay	279.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.62		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1585	914	123	904	581	783
Future Volume (vph)	1585	914	123	904	581	783
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1468	1752	3438	1680	1538
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1468	1752	3438	1680	1538
Peak-hour factor, PHF	0.95	0.95	0.90	0.90	0.80	0.80
Adj. Flow (vph)	1668	962	137	1004	726	979
RTOR Reduction (vph)	0	459	0	0	0	387
Lane Group Flow (vph)	1668	503	137	1004	726	592
Heavy Vehicles (%)	2%	10%	3%	5%	11%	5%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	62.9	62.9	17.1	86.0	40.0	40.0
Effective Green, g (s)	62.9	62.9	17.1	86.0	40.0	40.0
Actuated g/C Ratio	0.46	0.46	0.12	0.62	0.29	0.29
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1613	669	217	2142	486	445
v/s Ratio Prot	c0.47	0.34	c0.08	0.29	c0.43	0.38
v/s Ratio Perm						
v/c Ratio	1.03	0.75	0.63	0.47	1.49	1.33
Uniform Delay, d1	37.5	31.1	57.5	13.8	49.0	49.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	31.7	7.6	6.6	0.7	232.9	163.4
Delay (s)	69.3	38.7	64.0	14.6	281.9	212.4
Level of Service	E	D	E	B	F	F
Approach Delay (s)	58.1			20.5	242.0	
Approach LOS	E			C	F	

Intersection Summary			
HCM 2000 Control Delay	107.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	60.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	31	10	302	132	123	23	110	109	28	316	36
Future Vol, veh/h	0	31	10	302	132	123	23	110	109	28	316	36
Peak Hour Factor	0.50	0.50	0.50	0.70	0.70	0.70	0.87	0.87	0.87	0.70	0.70	0.70
Heavy Vehicles, %	0	0	0	2	0	5	0	6	8	14	0	0
Mvmt Flow	0	62	20	431	189	176	26	126	125	40	451	51
Number of Lanes	0	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	14.6	43.6	14.5	116.7
HCM LOS	B	E	B	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	17%	0%	0%	100%	0%	7%
Vol Thru, %	83%	0%	76%	0%	52%	83%
Vol Right, %	0%	100%	24%	0%	48%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	109	41	302	255	380
LT Vol	23	0	0	302	0	28
Through Vol	110	0	31	0	132	316
RT Vol	0	109	10	0	123	36
Lane Flow Rate	153	125	82	431	364	543
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.345	0.259	0.198	0.941	0.707	1.152
Departure Headway (Hd)	8.501	7.79	9.349	8.288	7.391	7.637
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	427	464	386	440	492	478
Service Time	6.201	5.49	7.349	5.988	5.091	5.689
HCM Lane V/C Ratio	0.358	0.269	0.212	0.98	0.74	1.136
HCM Control Delay	15.6	13.2	14.6	58.4	26	116.7
HCM Lane LOS	C	B	B	F	D	F
HCM 95th-tile Q	1.5	1	0.7	10.9	5.5	19.3

Intersection												
Int Delay, s/veh	5.6											
Movement	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations												
Traffic Vol, veh/h	8	13	15	39	6	23	39	263	49	51	472	49
Future Vol, veh/h	8	13	15	39	6	23	39	263	49	51	472	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	83	83	83	79	79	79	66	66	66
Heavy Vehicles, %	25	0	14	0	33	9	0	4	0	4	1	4
Mvmt Flow	11	18	21	47	7	28	49	333	62	77	715	74

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1386	1399	752	1388	1405	364	789	0	0	395	0	0
Stage 1	906	906	-	462	462	-	-	-	-	-	-	-
Stage 2	480	493	-	926	943	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.34	7.1	6.83	6.29	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.426	3.5	4.297	3.381	2.2	-	-	2.236	-	-
Pot Cap-1 Maneuver	107	142	391	121	120	666	840	-	-	1153	-	-
Stage 1	301	358	-	584	516	-	-	-	-	-	-	-
Stage 2	526	550	-	325	303	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	88	125	391	92	105	666	840	-	-	1153	-	-
Mov Cap-2 Maneuver	88	125	-	92	105	-	-	-	-	-	-	-
Stage 1	284	334	-	550	486	-	-	-	-	-	-	-
Stage 2	468	518	-	271	283	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	39.4	60.4	1.1	0.7
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	840	-	-	154	94	666	1153	-	-
HCM Lane V/C Ratio	0.059	-	-	0.329	0.577	0.042	0.067	-	-
HCM Control Delay (s)	9.6	-	-	39.4	85.9	10.6	8.3	-	-
HCM Lane LOS	A	-	-	E	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.3	2.7	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	11	6	46	11	11	6	341	285	17	148	17
Future Vol, veh/h	6	11	6	46	11	11	6	341	285	17	148	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	12	7	51	12	12	7	379	317	19	164	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	776	922	174	773	773	538	183	0	0	696	0	0
Stage 1	212	212	-	552	552	-	-	-	-	-	-	-
Stage 2	564	710	-	221	221	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	315	270	869	316	330	543	1392	-	-	900	-	-
Stage 1	790	727	-	518	515	-	-	-	-	-	-	-
Stage 2	510	437	-	781	720	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	291	261	869	295	319	543	1392	-	-	900	-	-
Mov Cap-2 Maneuver	291	261	-	295	319	-	-	-	-	-	-	-
Stage 1	783	710	-	513	510	-	-	-	-	-	-	-
Stage 2	482	433	-	743	703	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.8	19.5	0.1	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1392	-	-	330	323	900	-	-
HCM Lane V/C Ratio	0.005	-	-	0.077	0.234	0.021	-	-
HCM Control Delay (s)	7.6	0	-	16.8	19.5	9.1	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.9	0.1	-	-

Intersection	
Int Delay, s/veh	69.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	621	348	136	10	46	165
Future Vol, veh/h	621	348	136	10	46	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	690	387	151	11	51	183

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	364	51	234	0	-	0
Stage 1	51	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 635	1017	1333	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 563	1017	1333	-	-	-
Mov Cap-2 Maneuver	~ 563	-	-	-	-	-
Stage 1	861	-	-	-	-	-
Stage 2	741	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	93.8	7.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1333	-	563	1017	-	-
HCM Lane V/C Ratio	0.113	-	1.226	0.38	-	-
HCM Control Delay (s)	8	-	140.3	10.7	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	25.9	1.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	207	1301	430	0
Future Vol, veh/h	0	20	207	1301	430	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	67	67	75	75
Heavy Vehicles, %	2	2	1	2	2	0
Mvmt Flow	0	40	309	1942	573	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3133	573	573	0	-	0
Stage 1	573	-	-	-	-	-
Stage 2	2560	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	12	519	1005	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	59	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	12	519	1005	-	-	-
Mov Cap-2 Maneuver	12	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	59	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	1.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1005	-	519	-	-
HCM Lane V/C Ratio	0.307	-	0.077	-	-
HCM Control Delay (s)	10.2	0	12.5	-	-
HCM Lane LOS	B	A	B	-	-
HCM 95th %tile Q(veh)	1.3	-	0.2	-	-

Intersection	
Int Delay, s/veh	85.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	6	40	0	5	36	1505	86	13	431	0
Future Vol, veh/h	0	0	6	40	0	5	36	1505	86	13	431	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	71	71	71	71	71	71	70	70	70
Heavy Vehicles, %	0	0	33	17	0	50	6	1	7	17	3	0
Mvmt Flow	0	0	16	56	0	7	51	2120	121	19	616	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2940	2997	616	2945	2937	2181	616	0	0	2241	0	0
Stage 1	654	654	-	2283	2283	-	-	-	-	-	-	-
Stage 2	2286	2343	-	662	654	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.53	7.27	6.5	6.7	4.16	-	-	4.27	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.597	3.653	4	3.75	2.254	-	-	2.353	-	-
Pot Cap-1 Maneuver	9	14	438	~ 8	15	42	945	-	-	204	-	-
Stage 1	459	466	-	~ 48	76	-	-	-	-	-	-	-
Stage 2	53	71	-	427	466	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	7	12	438	~ 7	13	42	945	-	-	204	-	-
Mov Cap-2 Maneuver	7	12	-	~ 7	13	-	-	-	-	-	-	-
Stage 1	459	400	-	~ 48	76	-	-	-	-	-	-	-
Stage 2	44	71	-	353	400	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.5	$ 4020.1	0.2	0.7
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	945	-	-	438	8	204	-	-
HCM Lane V/C Ratio	0.054	-	-	0.036	7.923	0.091	-	-
HCM Control Delay (s)	9	0	-	13.5	$ 4020.1	24.4	0	-
HCM Lane LOS	A	A	-	B	F	C	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	9.4	0.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	86.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	266	1361	0	0	477
Future Vol, veh/h	0	266	1361	0	0	477
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	76	95	92	92	80
Heavy Vehicles, %	2	3	2	2	2	4
Mvmt Flow	0	350	1433	0	0	596

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1433	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.245	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3285	-	-	-	-
Pot Cap-1 Maneuver	0	~ 162	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	~ 162	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 588	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	162	-
HCM Lane V/C Ratio	-	2.16	-
HCM Control Delay (s)	-	$ 588	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	28.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	487	8	315	280	339	11	0	1450	113	17	3
Future Volume (vph)	6	487	8	315	280	339	11	0	1450	113	17	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95		0.97	0.95			1.00	0.88		1.00	
Frt	1.00	1.00		1.00	0.92			1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	
Satd. Flow (prot)	1357	3532		3155	3299			1491	2842		2059	
Flt Permitted	0.95	1.00		0.95	1.00			0.69	1.00		0.75	
Satd. Flow (perm)	1357	3532		3155	3299			1086	2842		1610	
Peak-hour factor, PHF	0.69	0.69	0.69	0.88	0.88	0.88	0.93	0.93	0.93	0.81	0.81	0.81
Adj. Flow (vph)	9	706	12	358	318	385	12	0	1559	140	21	4
RTOR Reduction (vph)	0	1	0	0	134	0	0	0	0	0	1	0
Lane Group Flow (vph)	9	717	0	358	569	0	0	12	1559	0	164	0
Heavy Vehicles (%)	33%	2%	0%	11%	1%	0%	17%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	4.2	24.9		14.2	35.9			20.2	20.2		20.2	
Effective Green, g (s)	4.2	24.9		14.2	35.9			20.2	20.2		20.2	
Actuated g/C Ratio	0.05	0.32		0.18	0.46			0.26	0.26		0.26	
Clearance Time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)	2.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	73	1137		579	1532			283	742		420	
v/s Ratio Prot	0.01	c0.20		c0.11	0.17							
v/s Ratio Perm								0.01	c0.55		0.10	
v/c Ratio	0.12	0.63		0.62	0.37			0.04	2.10		0.39	
Uniform Delay, d1	34.8	22.3		29.1	13.4			21.3	28.5		23.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.3	1.2		2.0	0.2			0.1	500.1		0.6	
Delay (s)	35.1	23.4		31.0	13.6			21.4	528.6		24.1	
Level of Service	D	C		C	B			C	F		C	
Approach Delay (s)		23.6			19.4			524.7			24.1	
Approach LOS		C			B			F			C	

Intersection Summary			
HCM 2000 Control Delay	245.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1342	708	764	680	0	0	0	0	434	0	268
Future Volume (vph)	0	1342	708	764	680	0	0	0	0	434	0	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		6040	1546	3236	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		6040	1546	3236	3455					3502		2814
Peak-hour factor, PHF	0.92	0.85	0.85	0.94	0.94	0.92	0.92	0.92	0.92	0.75	0.25	0.75
Adj. Flow (vph)	0	1579	833	813	723	0	0	0	0	579	0	357
RTOR Reduction (vph)	0	0	364	0	0	0	0	0	0	0	0	270
Lane Group Flow (vph)	0	1579	469	813	723	0	0	0	0	579	0	87
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		35.0	35.0	25.0	66.0					25.0		25.0
Effective Green, g (s)		35.0	35.0	25.0	66.0					25.0		25.0
Actuated g/C Ratio		0.34	0.34	0.24	0.64					0.24		0.24
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		2052	525	785	2213					850		683
v/s Ratio Prot		0.26	c0.30	c0.25	0.21					c0.17		0.03
v/s Ratio Perm												
v/c Ratio		0.77	0.89	1.04	0.33					0.68		0.13
Uniform Delay, d1		30.4	32.2	39.0	8.4					35.4		30.5
Progression Factor		1.00	1.00	1.29	1.36					1.00		1.00
Incremental Delay, d2		2.1	18.5	30.1	0.1					2.9		0.2
Delay (s)		32.5	50.7	80.5	11.5					38.3		30.6
Level of Service		C	D	F	B					D		C
Approach Delay (s)		38.8			48.0			0.0			35.4	
Approach LOS		D			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	41.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	807	969	0	0	1109	454	335	0	698	0	0	0
Future Volume (vph)	807	969	0	0	1109	454	335	0	698	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.96		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3236	3455			4655		3433		2814			
Flt Permitted	0.11	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	389	3455			4655		3433		2814			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.90	0.90	0.94	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	928	1114	0	0	1232	504	356	0	743	0	0	0
RTOR Reduction (vph)	0	0	0	0	71	0	0	0	563	0	0	0
Lane Group Flow (vph)	928	1114	0	0	1665	0	356	0	180	0	0	0
Heavy Vehicles (%)	1%	1%	2%	2%	1%	0%	2%	2%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	60.0	35.0			35.0		25.0		25.0			
Effective Green, g (s)	60.0	35.0			35.0		25.0		25.0			
Actuated g/C Ratio	0.58	0.34			0.34		0.24		0.24			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	917	1174			1581		833		683			
v/s Ratio Prot	c0.25	0.32			c0.36		c0.10		0.06			
v/s Ratio Perm	0.34											
v/c Ratio	1.01	0.95			1.05		0.43		0.26			
Uniform Delay, d1	30.7	33.1			34.0		33.0		31.6			
Progression Factor	1.58	0.62			1.00		1.00		1.00			
Incremental Delay, d2	26.9	11.5			38.0		0.7		0.4			
Delay (s)	75.5	31.9			72.0		33.7		32.0			
Level of Service	E	C			E		C		C			
Approach Delay (s)		51.7			72.0			32.5			0.0	
Approach LOS		D			E			C			A	

Intersection Summary			
HCM 2000 Control Delay	54.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1162	197	2000	313	838	1588
Future Volume (vph)	1162	197	2000	313	838	1588
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1509	5085	1323	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1509	5085	1323	3433	3539
Peak-hour factor, PHF	0.89	0.89	0.95	0.95	0.84	0.84
Adj. Flow (vph)	1306	221	2105	329	998	1890
RTOR Reduction (vph)	0	140	0	223	0	0
Lane Group Flow (vph)	1306	81	2105	106	998	1890
Heavy Vehicles (%)	4%	7%	2%	18%	2%	2%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	30.0	30.0	20.0	56.0
Effective Green, g (s)	25.0	25.0	30.0	30.0	20.0	56.0
Actuated g/C Ratio	0.27	0.27	0.32	0.32	0.22	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	905	405	1640	426	738	2131
v/s Ratio Prot	c0.39	0.05	c0.41	0.08	c0.29	0.53
v/s Ratio Perm						
v/c Ratio	1.44	0.20	1.28	0.25	1.35	0.89
Uniform Delay, d1	34.0	26.3	31.5	23.2	36.5	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	205.7	0.3	132.4	1.4	167.4	5.9
Delay (s)	239.7	26.6	163.9	24.6	203.9	21.7
Level of Service	F	C	F	C	F	C
Approach Delay (s)	208.8		145.1			84.7
Approach LOS	F		F			F

Intersection Summary			
HCM 2000 Control Delay	133.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	353	1844	1433	256	540	993
Future Volume (vph)	353	1844	1433	256	540	993
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	3539	1583	1787	1599
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3539	3539	1583	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.93	0.93	0.87	0.87
Adj. Flow (vph)	401	2095	1541	275	621	1141
RTOR Reduction (vph)	0	0	0	191	0	165
Lane Group Flow (vph)	401	2095	1541	84	621	976
Heavy Vehicles (%)	1%	2%	2%	2%	1%	1%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	5.0	29.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	5.0	29.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.08	0.49	0.31	0.31	0.31	0.31
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	151	1739	1079	482	545	487
v/s Ratio Prot	c0.22	0.59	c0.44		0.35	c0.61
v/s Ratio Perm				0.05		
v/c Ratio	2.66	1.20	1.43	0.17	1.14	2.00
Uniform Delay, d1	27.0	15.0	20.5	15.0	20.5	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	763.7	97.9	198.1	0.8	83.1	458.8
Delay (s)	790.7	112.9	218.6	15.8	103.6	479.3
Level of Service	F	F	F	B	F	F
Approach Delay (s)		221.8	187.9		346.9	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	247.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.83		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1060	1324	463	1465	224	534
Future Volume (vph)	1060	1324	463	1465	224	534
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1568	1787	3539	1636	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1568	1787	3539	1636	1583
Peak-hour factor, PHF	0.89	0.89	0.86	0.86	0.88	0.88
Adj. Flow (vph)	1191	1488	538	1703	255	607
RTOR Reduction (vph)	0	412	0	0	0	430
Lane Group Flow (vph)	1191	1076	538	1703	255	177
Heavy Vehicles (%)	2%	3%	1%	2%	14%	2%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	42.0	42.0	48.4	96.4	29.6	29.6
Effective Green, g (s)	42.0	42.0	48.4	96.4	29.6	29.6
Actuated g/C Ratio	0.30	0.30	0.35	0.70	0.21	0.21
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1077	477	626	2472	350	339
v/s Ratio Prot	0.34	c0.69	c0.30	0.48	c0.16	0.11
v/s Ratio Perm						
v/c Ratio	1.11	2.26	0.86	0.69	0.73	0.52
Uniform Delay, d1	48.0	48.0	41.6	12.1	50.5	48.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	61.2	572.0	11.7	1.6	7.9	1.9
Delay (s)	109.2	620.0	53.4	13.7	58.3	49.8
Level of Service	F	F	D	B	E	D
Approach Delay (s)	392.9			23.2	52.4	
Approach LOS	F			C	D	

Intersection Summary			
HCM 2000 Control Delay	198.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	117.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	32.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	71	90	24	252	24	19	2	337	253	72	109	3
Future Vol, veh/h	71	90	24	252	24	19	2	337	253	72	109	3
Peak Hour Factor	0.71	0.71	0.71	0.90	0.90	0.90	0.75	0.75	0.75	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	2	0	10	0	1	3	11	4	0
Mvmt Flow	100	127	34	280	27	21	3	449	337	82	124	3
Number of Lanes	0	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	24.3	26	41.6	21.1
HCM LOS	C	D	E	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	1%	0%	38%	100%	0%	39%
Vol Thru, %	99%	0%	49%	0%	56%	59%
Vol Right, %	0%	100%	13%	0%	44%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	339	253	185	252	43	184
LT Vol	2	0	71	252	0	72
Through Vol	337	0	90	0	24	109
RT Vol	0	253	24	0	19	3
Lane Flow Rate	452	337	261	280	48	209
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.947	0.641	0.617	0.681	0.105	0.517
Departure Headway (Hd)	7.657	6.951	8.531	8.865	7.992	8.895
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	479	523	425	412	451	408
Service Time	5.357	4.651	6.531	6.565	5.692	6.913
HCM Lane V/C Ratio	0.944	0.644	0.614	0.68	0.106	0.512
HCM Control Delay	56.8	21.2	24.3	28.5	11.6	21.1
HCM Lane LOS	F	C	C	D	B	C
HCM 95th-tile Q	11.5	4.5	4	4.9	0.3	2.9

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	11	8	68	8	39	14	475	55	22	403	19
Future Vol, veh/h	6	11	8	68	8	39	14	475	55	22	403	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	87	87	87	73	73	73	90	90	90
Heavy Vehicles, %	0	0	25	3	25	0	0	3	0	0	1	0
Mvmt Flow	9	17	12	78	9	45	19	651	75	24	448	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1261	1271	459	1248	1244	689	469	0	0	726	0	0
Stage 1	507	507	-	727	727	-	-	-	-	-	-	-
Stage 2	754	764	-	521	517	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.13	6.75	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.527	4.225	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	148	169	557	149	157	449	1103	-	-	886	-	-
Stage 1	552	543	-	414	397	-	-	-	-	-	-	-
Stage 2	404	416	-	537	498	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	123	162	557	130	150	449	1103	-	-	886	-	-
Mov Cap-2 Maneuver	123	162	-	130	150	-	-	-	-	-	-	-
Stage 1	543	528	-	407	390	-	-	-	-	-	-	-
Stage 2	349	409	-	495	485	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.5	53.7	0.2	0.5
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1103	-	-	191	132	449	886	-	-
HCM Lane V/C Ratio	0.017	-	-	0.201	0.662	0.1	0.028	-	-
HCM Control Delay (s)	8.3	-	-	28.5	74.1	13.9	9.2	-	-
HCM Lane LOS	A	-	-	D	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	3.6	0.3	0.1	-	-

Intersection												
Int Delay, s/veh	35.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	17	6	267	11	6	0	188	108	6	467	6
Future Vol, veh/h	6	17	6	267	11	6	0	188	108	6	467	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	19	7	297	12	7	0	209	120	7	519	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	816	866	523	819	809	269	526	0	0	329	0	0
Stage 1	537	537	-	269	269	-	-	-	-	-	-	-
Stage 2	279	329	-	550	540	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	296	291	554	~ 294	314	770	1041	-	-	1231	-	-
Stage 1	528	523	-	737	687	-	-	-	-	-	-	-
Stage 2	728	646	-	519	521	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	283	289	554	~ 274	311	770	1041	-	-	1231	-	-
Mov Cap-2 Maneuver	283	289	-	~ 274	311	-	-	-	-	-	-	-
Stage 1	528	519	-	737	687	-	-	-	-	-	-	-
Stage 2	709	646	-	490	517	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.5	133.6	0	0.1
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1041	-	-	319	279	1231	-	-
HCM Lane V/C Ratio	-	-	-	0.101	1.131	0.005	-	-
HCM Control Delay (s)	0	-	-	17.5	133.6	7.9	0	-
HCM Lane LOS	A	-	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	13.4	0	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	105.9					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	262	155	394	34	28	711
Future Vol, veh/h	262	155	394	34	28	711
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	291	172	438	38	31	790

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	945	31	821	0	-	0
Stage 1	31	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 291	1043	808	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 133	1043	808	-	-	-
Mov Cap-2 Maneuver	~ 133	-	-	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	391	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 388.5	13.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	808	-	133	1043	-	-
HCM Lane V/C Ratio	0.542	-	2.189	0.165	-	-
HCM Control Delay (s)	14.6	-	$ 612.9	9.1	-	-
HCM Lane LOS	B	-	F	A	-	-
HCM 95th %tile Q(veh)	3.3	-	24.3	0.6	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	30.1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	158	25	521	1279	2
Future Vol, veh/h	2	158	25	521	1279	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	85	85	89	89
Heavy Vehicles, %	0	1	0	1	1	0
Mvmt Flow	3	232	29	613	1437	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2109	1438	1439	0	-	0
Stage 1	1438	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	57	~ 164	478	-	-	-
Stage 1	221	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	52	~ 164	478	-	-	-
Mov Cap-2 Maneuver	52	-	-	-	-	-
Stage 1	201	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	294.9	0.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	478	-	160	-	-
HCM Lane V/C Ratio	0.062	-	1.471	-	-
HCM Control Delay (s)	13	0	294.9	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	15.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	150.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	31	52	0	14	72	532	84	17	1450	27
Future Vol, veh/h	10	0	31	52	0	14	72	532	84	17	1450	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	83	83	83	94	94	94	89	89	89
Heavy Vehicles, %	0	0	0	12	0	29	0	1	12	22	1	0
Mvmt Flow	16	0	49	63	0	17	77	566	89	19	1629	30

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2455	2491	1644	2472	2462	611	1659	0	0	655	0	0
Stage 1	1682	1682	-	765	765	-	-	-	-	-	-	-
Stage 2	773	809	-	1707	1697	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.22	6.5	6.49	4.1	-	-	4.32	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.608	4	3.561	2.2	-	-	2.398	-	-
Pot Cap-1 Maneuver	21	30	124	~ 19	31	448	394	-	-	844	-	-
Stage 1	121	152	-	381	415	-	-	-	-	-	-	-
Stage 2	395	396	-	109	150	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 12	14	124	~ 7	15	448	394	-	-	844	-	-
Mov Cap-2 Maneuver	~ 12	14	-	~ 7	15	-	-	-	-	-	-	-
Stage 1	83	106	-	262	286	-	-	-	-	-	-	-
Stage 2	262	272	-	~ 46	105	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 574.3	$ 4335.5	1.7	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	394	-	-	38	9	844	-	-
HCM Lane V/C Ratio	0.194	-	-	1.713	8.835	0.023	-	-
HCM Control Delay (s)	16.3	0	-	$ 574.3	$ 4335.5	9.4	0	-
HCM Lane LOS	C	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.7	-	-	6.9	11.4	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	79	609	0	0	1533
Future Vol, veh/h	0	79	609	0	0	1533
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	100	100	92	92	100
Heavy Vehicles, %	2	13	1	2	2	1
Mvmt Flow	0	79	609	0	0	1533

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	609	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.395	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.4235	-	-	-	-
Pot Cap-1 Maneuver	0	470	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	470	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	470	-
HCM Lane V/C Ratio	-	0.168	-
HCM Control Delay (s)	-	14.2	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.6	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	144	7	1058	635	134	7	2	289	5	0	0
Future Volume (vph)	0	144	7	1058	635	134	7	2	289	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		0.95		0.97	0.95			1.00	0.88		1.00	
Frt		0.99		1.00	0.97			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.96	1.00		0.95	
Satd. Flow (prot)		3377		3433	3447			1491	2760		2046	
Flt Permitted		1.00		0.95	1.00			0.86	1.00		0.75	
Satd. Flow (perm)		3377		3433	3447			1326	2760		1614	
Peak-hour factor, PHF	0.71	0.71	0.71	0.73	0.73	0.73	0.78	0.78	0.78	0.75	0.75	0.75
Adj. Flow (vph)	0	203	10	1449	870	184	9	3	371	7	0	0
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	209	0	1449	1048	0	0	12	371	0	7	0
Heavy Vehicles (%)	0%	4%	50%	2%	2%	2%	25%	0%	3%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		11.4		49.0	66.4			17.6	17.6		17.6	
Effective Green, g (s)		11.4		49.0	66.4			17.6	17.6		17.6	
Actuated g/C Ratio		0.12		0.51	0.69			0.18	0.18		0.18	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		401		1752	2384			243	506		295	
v/s Ratio Prot		0.06		c0.42	c0.30							
v/s Ratio Perm								0.01	c0.13		0.00	
v/c Ratio		0.52		0.83	0.44			0.05	0.73		0.02	
Uniform Delay, d1		39.7		19.9	6.6			32.3	37.0		32.2	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		1.2		3.4	0.1			0.1	5.4		0.0	
Delay (s)		41.0		23.3	6.7			32.4	42.4		32.2	
Level of Service		D		C	A			C	D		C	
Approach Delay (s)		41.0			16.3			42.1			32.2	
Approach LOS		D			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	304	134	159	1024	0	0	0	0	559	0	847
Future Volume (vph)	0	304	134	159	1024	0	0	0	0	559	0	847
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5981	1419	2918	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5981	1419	2918	3455					3502		2814
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	0	380	168	199	1280	0	0	0	0	745	0	1129
RTOR Reduction (vph)	0	0	112	0	0	0	0	0	0	0	0	101
Lane Group Flow (vph)	0	380	56	199	1280	0	0	0	0	745	0	1028
Heavy Vehicles (%)	0%	2%	10%	12%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		33.7	33.7	25.0	64.7					25.0		25.0
Effective Green, g (s)		33.7	33.7	25.0	64.7					25.0		25.0
Actuated g/C Ratio		0.33	0.33	0.25	0.64					0.25		0.25
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		1981	470	717	2198					860		691
v/s Ratio Prot		0.06	0.04	0.07	c0.37					0.21		c0.37
v/s Ratio Perm												
v/c Ratio		0.19	0.12	0.28	0.58					0.87		1.49
Uniform Delay, d1		24.3	23.7	31.0	10.7					36.7		38.4
Progression Factor		1.00	1.00	0.90	1.58					1.00		1.00
Incremental Delay, d2		0.1	0.2	0.1	0.3					9.9		227.1
Delay (s)		24.4	23.9	27.9	17.2					46.7		265.5
Level of Service		C	C	C	B					D		F
Approach Delay (s)		24.2			18.6			0.0			178.5	
Approach LOS		C			B			A			F	

Intersection Summary			
HCM 2000 Control Delay	96.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	101.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	742	0	0	409	78	774	0	370	0	0	0
Future Volume (vph)	121	742	0	0	409	78	774	0	370	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.98		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3113	3421			4668		3433		2733			
Flt Permitted	0.43	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1395	3421			4668		3433		2733			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.85	0.85	0.78	0.92	0.78	0.92	0.92	0.92
Adj. Flow (vph)	139	853	0	0	481	92	992	0	474	0	0	0
RTOR Reduction (vph)	0	0	0	0	24	0	0	0	355	0	0	0
Lane Group Flow (vph)	139	853	0	0	549	0	992	0	119	0	0	0
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	2%	4%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	50.7	33.7			41.7		25.0		25.0			
Effective Green, g (s)	50.7	33.7			41.7		25.0		25.0			
Actuated g/C Ratio	0.50	0.33			0.41		0.25		0.25			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	982	1133			1914		843		671			
v/s Ratio Prot	c0.02	c0.25			c0.12		c0.29		0.04			
v/s Ratio Perm	0.05											
v/c Ratio	0.14	0.75			0.29		1.18		0.18			
Uniform Delay, d1	13.4	30.3			20.1		38.4		30.2			
Progression Factor	1.12	1.25			1.00		1.00		1.00			
Incremental Delay, d2	0.1	2.7			0.2		91.8		0.3			
Delay (s)	15.1	40.6			20.2		130.2		30.5			
Level of Service	B	D			C		F		C			
Approach Delay (s)		37.0			20.2			98.0			0.0	
Approach LOS		D			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	63.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	101.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1107	562	2116	225	313	617
Future Volume (vph)	1107	562	2116	225	313	617
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3303	1599	4988	1229	3242	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3303	1599	4988	1229	3242	3374
Peak-hour factor, PHF	0.87	0.87	0.93	0.93	0.81	0.81
Adj. Flow (vph)	1272	646	2275	242	386	762
RTOR Reduction (vph)	0	319	0	156	0	0
Lane Group Flow (vph)	1272	327	2275	86	386	762
Heavy Vehicles (%)	6%	1%	4%	27%	8%	7%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	33.2	33.2	16.8	56.0
Effective Green, g (s)	25.0	25.0	33.2	33.2	16.8	56.0
Actuated g/C Ratio	0.27	0.27	0.36	0.36	0.18	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	887	429	1780	438	585	2031
v/s Ratio Prot	c0.39	0.20	c0.46	0.07	c0.12	0.23
v/s Ratio Perm						
v/c Ratio	1.43	0.76	1.28	0.20	0.66	0.38
Uniform Delay, d1	34.0	31.3	29.9	20.7	35.4	9.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	201.8	8.3	129.6	1.0	3.0	0.5
Delay (s)	235.8	39.6	159.5	21.7	38.4	10.0
Level of Service	F	D	F	C	D	B
Approach Delay (s)	169.7		146.3			19.6
Approach LOS	F		F			B

Intersection Summary			
HCM 2000 Control Delay	128.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	627	2051	739	591	163	191
Future Volume (vph)	627	2051	739	591	163	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3471	3343	1583	1719	1538
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3471	3343	1583	1719	1538
Peak-hour factor, PHF	0.86	0.86	0.96	0.96	0.76	0.76
Adj. Flow (vph)	729	2385	770	616	214	251
RTOR Reduction (vph)	0	0	0	428	0	194
Lane Group Flow (vph)	729	2385	770	188	214	57
Heavy Vehicles (%)	1%	4%	8%	2%	5%	5%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	9.5	33.5	18.0	18.0	13.5	13.5
Effective Green, g (s)	9.5	33.5	18.0	18.0	13.5	13.5
Actuated g/C Ratio	0.16	0.57	0.31	0.31	0.23	0.23
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	287	1970	1019	482	393	351
v/s Ratio Prot	c0.41	c0.69	0.23		c0.12	0.04
v/s Ratio Perm				0.12		
v/c Ratio	2.54	1.21	0.76	0.39	0.54	0.16
Uniform Delay, d1	24.8	12.8	18.5	16.2	20.0	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	703.2	99.8	5.2	2.4	1.9	0.3
Delay (s)	728.0	112.5	23.7	18.5	22.0	18.5
Level of Service	F	F	C	B	C	B
Approach Delay (s)		256.6	21.4		20.1	
Approach LOS		F	C		C	

Intersection Summary			
HCM 2000 Control Delay	168.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1418	796	111	812	518	709
Future Volume (vph)	1418	796	111	812	518	709
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1468	1752	3438	1680	1538
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1468	1752	3438	1680	1538
Peak-hour factor, PHF	0.95	0.95	0.90	0.90	0.80	0.80
Adj. Flow (vph)	1493	838	123	902	648	886
RTOR Reduction (vph)	0	449	0	0	0	388
Lane Group Flow (vph)	1493	389	123	902	648	498
Heavy Vehicles (%)	2%	10%	3%	5%	11%	5%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	64.0	64.0	16.0	86.0	40.0	40.0
Effective Green, g (s)	64.0	64.0	16.0	86.0	40.0	40.0
Actuated g/C Ratio	0.46	0.46	0.12	0.62	0.29	0.29
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1641	680	203	2142	486	445
v/s Ratio Prot	c0.42	0.26	c0.07	0.26	c0.39	0.32
v/s Ratio Perm						
v/c Ratio	0.91	0.57	0.61	0.42	1.33	1.12
Uniform Delay, d1	34.3	27.0	58.0	13.3	49.0	49.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.0	3.5	5.8	0.6	163.6	79.5
Delay (s)	43.4	30.5	63.8	13.9	212.6	128.5
Level of Service	D	C	E	B	F	F
Approach Delay (s)	38.7			19.9	164.0	
Approach LOS	D			B	F	

Intersection Summary			
HCM 2000 Control Delay	74.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	45.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	28	9	320	120	111	21	100	113	26	286	33
Future Vol, veh/h	0	28	9	320	120	111	21	100	113	26	286	33
Peak Hour Factor	0.50	0.50	0.50	0.70	0.70	0.70	0.87	0.87	0.87	0.70	0.70	0.70
Heavy Vehicles, %	0	0	0	2	0	5	0	6	8	14	0	0
Mvmt Flow	0	56	18	457	171	159	24	115	130	37	409	47
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	13.2	50.2	18.4	58
HCM LOS	B	F	C	F

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	9%	0%	100%	0%	8%
Vol Thru, %	43%	76%	0%	52%	83%
Vol Right, %	48%	24%	0%	48%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	234	37	320	231	345
LT Vol	21	0	320	0	26
Through Vol	100	28	0	120	286
RT Vol	113	9	0	111	33
Lane Flow Rate	269	74	457	330	493
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.538	0.172	1.002	0.641	0.964
Departure Headway (Hd)	7.195	8.357	7.889	6.995	7.038
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	500	427	462	515	518
Service Time	5.253	6.45	5.647	4.752	5.083
HCM Lane V/C Ratio	0.538	0.173	0.989	0.641	0.952
HCM Control Delay	18.4	13.2	71	21.5	58
HCM Lane LOS	C	B	F	C	F
HCM 95th-tile Q	3.1	0.6	13.1	4.5	12.5

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	11	13	35	5	21	35	252	44	46	475	44
Future Vol, veh/h	7	11	13	35	5	21	35	252	44	46	475	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	83	83	83	79	79	79	66	66	66
Heavy Vehicles, %	25	0	14	0	33	9	0	4	0	4	1	4
Mvmt Flow	10	15	18	42	6	25	44	319	56	70	720	67

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1345	1357	754	1345	1362	347	787	0	0	375	0	0
Stage 1	894	894	-	435	435	-	-	-	-	-	-	-
Stage 2	451	463	-	910	927	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.34	7.1	6.83	6.29	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.426	3.5	4.297	3.381	2.2	-	-	2.236	-	-
Pot Cap-1 Maneuver	115	150	390	130	128	680	841	-	-	1173	-	-
Stage 1	306	362	-	604	531	-	-	-	-	-	-	-
Stage 2	546	568	-	332	309	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	98	134	390	104	114	680	841	-	-	1173	-	-
Mov Cap-2 Maneuver	98	134	-	104	114	-	-	-	-	-	-	-
Stage 1	290	340	-	573	503	-	-	-	-	-	-	-
Stage 2	492	538	-	284	290	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.3	46.6	1	0.7
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	841	-	-	166	105	680	1173	-	-
HCM Lane V/C Ratio	0.053	-	-	0.263	0.459	0.037	0.059	-	-
HCM Control Delay (s)	9.5	-	-	34.3	65.5	10.5	8.3	-	-
HCM Lane LOS	A	-	-	D	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1	2	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	5	41	10	10	5	370	258	15	155	15
Future Vol, veh/h	5	10	5	41	10	10	5	370	258	15	155	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	11	6	46	11	11	6	411	287	17	172	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	793	925	181	790	790	555	189	0	0	698	0	0
Stage 1	215	215	-	567	567	-	-	-	-	-	-	-
Stage 2	578	710	-	223	223	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	306	269	862	308	322	531	1385	-	-	898	-	-
Stage 1	787	725	-	508	507	-	-	-	-	-	-	-
Stage 2	501	437	-	780	719	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	285	261	862	290	313	531	1385	-	-	898	-	-
Mov Cap-2 Maneuver	285	261	-	290	313	-	-	-	-	-	-	-
Stage 1	781	710	-	504	503	-	-	-	-	-	-	-
Stage 2	476	434	-	747	704	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.9	19.4	0.1	0.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1385	-	-	324	317	898	-	-
HCM Lane V/C Ratio	0.004	-	-	0.069	0.214	0.019	-	-
HCM Control Delay (s)	7.6	0	-	16.9	19.4	9.1	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.8	0.1	-	-

Intersection	
Int Delay, s/veh	15.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	624	227	26	9	41	170
Future Vol, veh/h	624	227	26	9	41	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	693	252	29	10	46	189

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	114	46	235	0	-	0
Stage 1	46	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	882	1023	1332	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	863	1023	1332	-	-	-
Mov Cap-2 Maneuver	863	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20	5.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1332	-	863	1023	-	-
HCM Lane V/C Ratio	0.022	-	0.803	0.247	-	-
HCM Control Delay (s)	7.8	-	23.8	9.7	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	8.7	1	-	-

Intersection						
Int Delay, s/veh	1.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	188	1150	313	0
Future Vol, veh/h	0	19	188	1150	313	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	67	67	75	75
Heavy Vehicles, %	2	2	1	2	2	0
Mvmt Flow	0	38	281	1716	417	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2695	417	417	0	-	0
Stage 1	417	-	-	-	-	-
Stage 2	2278	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	24	636	1147	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	83	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	636	1147	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	83	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	1.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1147	-	636	-	-
HCM Lane V/C Ratio	0.245	-	0.06	-	-
HCM Control Delay (s)	9.2	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	1	-	0.2	-	-

Intersection	
Int Delay, s/veh	33.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	36	0	4	33	1334	78	11	313	0
Future Vol, veh/h	0	0	5	36	0	4	33	1334	78	11	313	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	71	71	71	71	71	71	70	70	70
Heavy Vehicles, %	0	0	33	17	0	50	6	1	7	17	3	0
Mvmt Flow	0	0	13	51	0	6	46	1879	110	16	447	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2508	2560	447	2512	2505	1934	447	0	0	1989	0	0
Stage 1	479	479	-	2026	2026	-	-	-	-	-	-	-
Stage 2	2029	2081	-	486	479	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.53	7.27	6.5	6.7	4.16	-	-	4.27	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.597	3.653	4	3.75	2.254	-	-	2.353	-	-
Pot Cap-1 Maneuver	20	27	552	~ 17	29	61	1092	-	-	258	-	-
Stage 1	571	558	-	68	102	-	-	-	-	-	-	-
Stage 2	76	96	-	535	558	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	17	25	552	~ 16	27	61	1092	-	-	258	-	-
Mov Cap-2 Maneuver	17	25	-	~ 16	27	-	-	-	-	-	-	-
Stage 1	571	512	-	68	102	-	-	-	-	-	-	-
Stage 2	69	96	-	479	512	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.7	$ 1503.5	0.2	0.7
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1092	-	-	552	17	258	-	-
HCM Lane V/C Ratio	0.043	-	-	0.024	3.314	0.061	-	-
HCM Control Delay (s)	8.4	0	-	11.7	$ 1503.5	19.9	0	-
HCM Lane LOS	A	A	-	B	F	C	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	7.7	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	42.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	227	1218	0	0	354
Future Vol, veh/h	0	227	1218	0	0	354
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	76	95	92	92	80
Heavy Vehicles, %	2	3	2	2	2	4
Mvmt Flow	0	299	1282	0	0	443

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1282	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.245	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3285	-	-	-	-
Pot Cap-1 Maneuver	0	~ 200	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	~ 200	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	290.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	200	-
HCM Lane V/C Ratio	-	1.493	-
HCM Control Delay (s)	-	290.3	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	18.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	487	7	37	274	307	10	0	1184	102	15	3
Future Volume (vph)	5	487	7	37	274	307	10	0	1184	102	15	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95		0.97	0.95			1.00	0.88		1.00	
Frt	1.00	1.00		1.00	0.92			1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	
Satd. Flow (prot)	1357	3533		3155	3308			1491	2842		2058	
Flt Permitted	0.95	1.00		0.95	1.00			0.70	1.00		0.75	
Satd. Flow (perm)	1357	3533		3155	3308			1097	2842		1612	
Peak-hour factor, PHF	0.69	0.69	0.69	0.88	0.88	0.88	0.93	0.93	0.93	0.81	0.81	0.81
Adj. Flow (vph)	7	706	10	42	311	349	11	0	1273	126	19	4
RTOR Reduction (vph)	0	1	0	0	148	0	0	0	0	0	1	0
Lane Group Flow (vph)	7	715	0	42	512	0	0	11	1273	0	148	0
Heavy Vehicles (%)	33%	2%	0%	11%	1%	0%	17%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	2.7	19.3		5.1	22.7			21.0	21.0		21.0	
Effective Green, g (s)	2.7	19.3		5.1	22.7			21.0	21.0		21.0	
Actuated g/C Ratio	0.04	0.30		0.08	0.36			0.33	0.33		0.33	
Clearance Time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)	2.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	57	1075		253	1184			363	941		533	
v/s Ratio Prot	0.01	c0.20		0.01	c0.15							
v/s Ratio Perm								0.01	c0.45		0.09	
v/c Ratio	0.12	0.67		0.17	0.43			0.03	1.35		0.28	
Uniform Delay, d1	29.2	19.2		27.2	15.5			14.3	21.2		15.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.4	1.6		0.3	0.3			0.0	165.8		0.3	
Delay (s)	29.6	20.8		27.5	15.7			14.4	187.0		15.9	
Level of Service	C	C		C	B			B	F		B	
Approach Delay (s)		20.9			16.4			185.5			15.9	
Approach LOS		C			B			F			B	

Intersection Summary			
HCM 2000 Control Delay	93.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1170	603	691	479	0	0	0	0	393	0	152
Future Volume (vph)	0	1170	603	691	479	0	0	0	0	393	0	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		6040	1546	3236	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		6040	1546	3236	3455					3502		2814
Peak-hour factor, PHF	0.92	0.85	0.85	0.94	0.94	0.92	0.92	0.92	0.92	0.75	0.25	0.75
Adj. Flow (vph)	0	1376	709	735	510	0	0	0	0	524	0	203
RTOR Reduction (vph)	0	0	365	0	0	0	0	0	0	0	0	154
Lane Group Flow (vph)	0	1376	344	735	510	0	0	0	0	524	0	49
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		35.0	35.0	25.0	60.6					24.7		24.7
Effective Green, g (s)		35.0	35.0	25.0	60.6					24.7		24.7
Actuated g/C Ratio		0.34	0.34	0.24	0.59					0.24		0.24
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		2058	526	787	2038					842		676
v/s Ratio Prot		c0.23	0.22	c0.23	0.15					c0.15		0.02
v/s Ratio Perm												
v/c Ratio		0.67	0.65	0.93	0.25					0.62		0.07
Uniform Delay, d1		28.9	28.7	38.0	10.1					34.8		30.1
Progression Factor		1.00	1.00	1.35	1.21					1.00		1.00
Incremental Delay, d2		1.1	3.9	12.4	0.1					2.0		0.1
Delay (s)		30.0	32.6	63.8	12.4					36.9		30.2
Level of Service		C	C	E	B					D		C
Approach Delay (s)		30.9			42.7			0.0			35.0	
Approach LOS		C			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	102.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	863	0	0	941	411	229	0	632	0	0	0
Future Volume (vph)	700	863	0	0	941	411	229	0	632	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.95		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3236	3455			4646		3433		2814			
Flt Permitted	0.11	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	389	3455			4646		3433		2814			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.90	0.90	0.94	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	805	992	0	0	1046	457	244	0	672	0	0	0
RTOR Reduction (vph)	0	0	0	0	76	0	0	0	510	0	0	0
Lane Group Flow (vph)	805	992	0	0	1427	0	244	0	162	0	0	0
Heavy Vehicles (%)	1%	1%	2%	2%	1%	0%	2%	2%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	59.4	35.0			35.6		24.7		24.7			
Effective Green, g (s)	59.4	35.0			35.6		24.7		24.7			
Actuated g/C Ratio	0.58	0.34			0.35		0.24		0.24			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	901	1177			1610		825		676			
v/s Ratio Prot	c0.21	0.29			c0.31		c0.07		0.06			
v/s Ratio Perm	0.30											
v/c Ratio	0.89	0.84			0.89		0.30		0.24			
Uniform Delay, d1	27.8	31.3			31.6		31.9		31.4			
Progression Factor	1.62	0.59			1.00		1.00		1.00			
Incremental Delay, d2	9.0	4.8			6.8		0.4		0.4			
Delay (s)	54.0	23.1			38.4		32.3		31.8			
Level of Service	D	C			D		C		C			
Approach Delay (s)		37.0			38.4			31.9			0.0	
Approach LOS		D			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	102.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1052	178	1810	283	718	1437
Future Volume (vph)	1052	178	1810	283	718	1437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1509	5085	1323	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1509	5085	1323	3433	3539
Peak-hour factor, PHF	0.89	0.89	0.95	0.95	0.84	0.84
Adj. Flow (vph)	1182	200	1905	298	855	1711
RTOR Reduction (vph)	0	140	0	202	0	0
Lane Group Flow (vph)	1182	60	1905	96	855	1711
Heavy Vehicles (%)	4%	7%	2%	18%	2%	2%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	30.0	30.0	20.0	56.0
Effective Green, g (s)	25.0	25.0	30.0	30.0	20.0	56.0
Actuated g/C Ratio	0.27	0.27	0.32	0.32	0.22	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	905	405	1640	426	738	2131
v/s Ratio Prot	c0.35	0.04	c0.37	0.07	c0.25	0.48
v/s Ratio Perm						
v/c Ratio	1.31	0.15	1.16	0.23	1.16	0.80
Uniform Delay, d1	34.0	25.9	31.5	23.0	36.5	14.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	145.8	0.2	79.9	1.2	86.1	3.3
Delay (s)	179.8	26.1	111.4	24.2	122.6	17.6
Level of Service	F	C	F	C	F	B
Approach Delay (s)	157.5		99.6			52.6
Approach LOS	F		F			D

Intersection Summary			
HCM 2000 Control Delay	93.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	319	1669	1296	230	419	859
Future Volume (vph)	319	1669	1296	230	419	859
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	3539	1583	1787	1599
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3539	3539	1583	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.93	0.93	0.87	0.87
Adj. Flow (vph)	362	1897	1394	247	482	987
RTOR Reduction (vph)	0	0	0	172	0	166
Lane Group Flow (vph)	363	1897	1394	75	482	821
Heavy Vehicles (%)	1%	2%	2%	2%	1%	1%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	5.0	29.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	5.0	29.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.08	0.49	0.31	0.31	0.31	0.31
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	151	1739	1079	482	545	487
v/s Ratio Prot	c0.20	0.54	c0.39		0.27	c0.51
v/s Ratio Perm				0.05		
v/c Ratio	2.40	1.09	1.29	0.16	0.88	1.69
Uniform Delay, d1	27.0	15.0	20.5	15.0	19.5	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	651.6	50.9	138.4	0.7	16.1	317.4
Delay (s)	678.6	65.9	158.9	15.7	35.6	337.9
Level of Service	F	E	F	B	D	F
Approach Delay (s)		164.3	137.3		238.7	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	176.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.60		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	935	1153	419	1324	202	483
Future Volume (vph)	935	1153	419	1324	202	483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1568	1787	3539	1636	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1568	1787	3539	1636	1583
Peak-hour factor, PHF	0.89	0.89	0.86	0.86	0.88	0.88
Adj. Flow (vph)	1051	1296	487	1540	230	549
RTOR Reduction (vph)	0	387	0	0	0	442
Lane Group Flow (vph)	1051	909	487	1540	230	107
Heavy Vehicles (%)	2%	3%	1%	2%	14%	2%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	49.6	49.6	43.5	99.1	26.9	26.9
Effective Green, g (s)	49.6	49.6	43.5	99.1	26.9	26.9
Actuated g/C Ratio	0.36	0.36	0.32	0.72	0.19	0.19
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1271	563	563	2541	318	308
v/s Ratio Prot	0.30	c0.58	c0.27	0.44	c0.14	0.07
v/s Ratio Perm						
v/c Ratio	0.83	1.61	0.87	0.61	0.72	0.35
Uniform Delay, d1	40.3	44.2	44.5	9.7	52.1	48.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	284.8	13.5	1.1	8.4	0.9
Delay (s)	46.5	329.0	58.0	10.8	60.5	48.9
Level of Service	D	F	E	B	E	D
Approach Delay (s)	202.5			22.1	52.3	
Approach LOS	F			C	D	

Intersection Summary			
HCM 2000 Control Delay	108.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	106.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	81	22	249	22	18	2	305	275	65	99	3
Future Vol, veh/h	64	81	22	249	22	18	2	305	275	65	99	3
Peak Hour Factor	0.71	0.71	0.71	0.90	0.90	0.90	0.75	0.75	0.75	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	2	0	10	0	1	3	11	4	0
Mvmt Flow	90	114	31	277	24	20	3	407	367	74	113	3
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	19.3	23.7	189.8	16.9
HCM LOS	C	C	F	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	38%	100%	0%	39%
Vol Thru, %	52%	49%	0%	55%	59%
Vol Right, %	47%	13%	0%	45%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	582	167	249	40	167
LT Vol	2	64	249	0	65
Through Vol	305	81	0	22	99
RT Vol	275	22	0	18	3
Lane Flow Rate	776	235	277	44	190
Geometry Grp	2	5	7	7	2
Degree of Util (X)	1.354	0.487	0.623	0.09	0.4
Departure Headway (Hd)	6.28	8.484	9.069	8.189	8.412
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	582	428	401	440	431
Service Time	4.28	6.484	6.769	5.889	6.412
HCM Lane V/C Ratio	1.333	0.549	0.691	0.1	0.441
HCM Control Delay	189.8	19.3	25.6	11.7	16.9
HCM Lane LOS	F	C	D	B	C
HCM 95th-tile Q	33.9	2.6	4.1	0.3	1.9

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	7	62	7	35	12	476	49	20	386	18
Future Vol, veh/h	5	10	7	62	7	35	12	476	49	20	386	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	87	87	87	73	73	73	90	90	90
Heavy Vehicles, %	0	0	25	3	25	0	0	3	0	0	1	0
Mvmt Flow	8	15	11	71	8	40	16	652	67	22	429	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1225	1234	439	1214	1211	686	449	0	0	719	0	0
Stage 1	483	483	-	718	718	-	-	-	-	-	-	-
Stage 2	742	751	-	496	493	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.13	6.75	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.527	4.225	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	157	178	572	158	165	451	1122	-	-	892	-	-
Stage 1	569	556	-	419	401	-	-	-	-	-	-	-
Stage 2	411	421	-	554	511	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	133	171	572	140	159	451	1122	-	-	892	-	-
Mov Cap-2 Maneuver	133	171	-	140	159	-	-	-	-	-	-	-
Stage 1	561	542	-	413	395	-	-	-	-	-	-	-
Stage 2	361	415	-	515	498	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.2	43.5	0.2	0.4
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1122	-	-	203	142	451	892	-	-
HCM Lane V/C Ratio	0.015	-	-	0.167	0.559	0.089	0.025	-	-
HCM Control Delay (s)	8.3	-	-	26.2	58.5	13.8	9.1	-	-
HCM Lane LOS	A	-	-	D	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	2.8	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	26.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	15	5	242	10	5	0	197	98	5	483	5
Future Vol, veh/h	5	15	5	242	10	5	0	197	98	5	483	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	17	6	269	11	6	0	219	109	6	537	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	834	880	540	838	829	274	543	0	0	328	0	0
Stage 1	552	552	-	274	274	-	-	-	-	-	-	-
Stage 2	282	328	-	564	555	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	288	286	542	286	306	765	1026	-	-	1232	-	-
Stage 1	518	515	-	732	683	-	-	-	-	-	-	-
Stage 2	725	647	-	510	513	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	276	284	542	269	304	765	1026	-	-	1232	-	-
Mov Cap-2 Maneuver	276	284	-	269	304	-	-	-	-	-	-	-
Stage 1	518	511	-	732	683	-	-	-	-	-	-	-
Stage 2	708	647	-	485	509	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.7	106.7	0	0.1
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1026	-	-	312	274	1232	-	-
HCM Lane V/C Ratio	-	-	-	0.089	1.042	0.005	-	-
HCM Control Delay (s)	0	-	-	17.7	106.7	7.9	0	-
HCM Lane LOS	A	-	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	11.1	0	-	-

Intersection						
Int Delay, s/veh	8.9					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	264	108	185	31	26	705
Future Vol, veh/h	264	108	185	31	26	705
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	293	120	206	34	29	783

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	475	29	812	0	-	0
Stage 1	29	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	548	1046	814	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	409	1046	814	-	-	-
Mov Cap-2 Maneuver	409	-	-	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.1	9.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	814	-	409	1046	-	-
HCM Lane V/C Ratio	0.253	-	0.717	0.115	-	-
HCM Control Delay (s)	10.9	-	33.2	8.9	-	-
HCM Lane LOS	B	-	D	A	-	-
HCM 95th %tile Q(veh)	1	-	5.5	0.4	-	-

Intersection	
Int Delay, s/veh	9.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	143	23	466	1048	2
Future Vol, veh/h	2	143	23	466	1048	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	85	85	89	89
Heavy Vehicles, %	0	1	0	1	1	0
Mvmt Flow	3	210	27	548	1178	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1781	1179	1180	0	-	0
Stage 1	1179	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	91	233	599	-	-	-
Stage 1	295	-	-	-	-	-
Stage 2	551	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	85	233	599	-	-	-
Mov Cap-2 Maneuver	85	-	-	-	-	-
Stage 1	276	-	-	-	-	-
Stage 2	551	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	89	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	599	-	228	-	-
HCM Lane V/C Ratio	0.045	-	0.935	-	-
HCM Control Delay (s)	11.3	0	89	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.1	-	8.1	-	-

Intersection	
Int Delay, s/veh	39.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	28	47	0	12	65	476	76	15	1203	25
Future Vol, veh/h	9	0	28	47	0	12	65	476	76	15	1203	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	83	83	83	94	94	94	89	89	89
Heavy Vehicles, %	0	0	0	12	0	29	0	1	12	22	1	0
Mvmt Flow	14	0	44	57	0	14	69	506	81	17	1352	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2092	2125	1366	2107	2099	547	1380	0	0	587	0	0
Stage 1	1400	1400	-	685	685	-	-	-	-	-	-	-
Stage 2	692	725	-	1422	1414	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.22	6.5	6.49	4.1	-	-	4.32	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.608	4	3.561	2.2	-	-	2.398	-	-
Pot Cap-1 Maneuver	39	51	182	~ 35	53	488	503	-	-	897	-	-
Stage 1	176	209	-	422	451	-	-	-	-	-	-	-
Stage 2	437	433	-	160	206	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	30	37	182	~ 21	39	488	503	-	-	897	-	-
Mov Cap-2 Maneuver	30	37	-	~ 21	39	-	-	-	-	-	-	-
Stage 1	140	192	-	335	358	-	-	-	-	-	-	-
Stage 2	337	344	-	111	189	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	120.1	$ 1101.6	1.4	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	503	-	-	82	26	897	-	-
HCM Lane V/C Ratio	0.137	-	-	0.716	2.734	0.019	-	-
HCM Control Delay (s)	13.3	0	-	120.1	$ 1101.6	9.1	0	-
HCM Lane LOS	B	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.5	-	-	3.5	8.7	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

207: Grafton Rd & I-95 SB Off-ramp
2025 Build Conditions Weekday PM Peak

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	68	549	0	0	1278
Future Vol, veh/h	0	68	549	0	0	1278
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	100	100	92	92	100
Heavy Vehicles, %	2	13	1	2	2	1
Mvmt Flow	0	68	549	0	0	1278

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	549	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.395	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.4235	-	-	-	-
Pot Cap-1 Maneuver	0	509	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	509	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	509	-
HCM Lane V/C Ratio	-	0.134	-
HCM Control Delay (s)	-	13.2	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.5	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	157	8	1504	697	148	8	2	465	6	0	0
Future Volume (vph)	0	157	8	1504	697	148	8	2	465	6	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		0.95		0.97	0.95			1.00	0.88		1.00	
Frt		0.99		1.00	0.97			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.96	1.00		0.95	
Satd. Flow (prot)		3376		3433	3446			1483	2760		2046	
Flt Permitted		1.00		0.95	1.00			0.86	1.00		0.75	
Satd. Flow (perm)		3376		3433	3446			1322	2760		1613	
Peak-hour factor, PHF	0.71	0.71	0.71	0.73	0.73	0.73	0.78	0.78	0.78	0.75	0.75	0.75
Adj. Flow (vph)	0	221	11	2060	955	203	10	3	596	8	0	0
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	228	0	2060	1152	0	0	13	596	0	8	0
Heavy Vehicles (%)	0%	4%	50%	2%	2%	2%	25%	0%	3%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		12.1		50.0	68.1			20.0	20.0		20.0	
Effective Green, g (s)		12.1		50.0	68.1			20.0	20.0		20.0	
Actuated g/C Ratio		0.12		0.50	0.68			0.20	0.20		0.20	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		408		1714	2344			264	551		322	
v/s Ratio Prot		0.07		c0.60	c0.33							
v/s Ratio Perm								0.01	c0.22		0.00	
v/c Ratio		0.56		1.20	0.49			0.05	1.08		0.02	
Uniform Delay, d1		41.5		25.0	7.7			32.4	40.0		32.2	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		1.8		96.7	0.2			0.1	62.3		0.0	
Delay (s)		43.2		121.8	7.8			32.4	102.3		32.2	
Level of Service		D		F	A			C	F		C	
Approach Delay (s)		43.2			80.8			100.8			32.2	
Approach LOS		D			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	81.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	100.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	436	192	175	1330	0	0	0	0	618	0	1068
Future Volume (vph)	0	436	192	175	1330	0	0	0	0	618	0	1068
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5981	1419	2918	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5981	1419	2918	3455					3502		2814
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.92	0.92	0.92	0.75	0.75	0.75
Adj. Flow (vph)	0	545	240	219	1662	0	0	0	0	824	0	1424
RTOR Reduction (vph)	0	0	158	0	0	0	0	0	0	0	0	72
Lane Group Flow (vph)	0	545	82	219	1663	0	0	0	0	824	0	1352
Heavy Vehicles (%)	0%	2%	10%	12%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		35.0	35.0	25.0	66.0					25.0		25.0
Effective Green, g (s)		35.0	35.0	25.0	66.0					25.0		25.0
Actuated g/C Ratio		0.34	0.34	0.24	0.64					0.24		0.24
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		2032	482	708	2213					850		683
v/s Ratio Prot		0.09	0.06	0.08	c0.48					0.24		c0.48
v/s Ratio Perm												
v/c Ratio		0.27	0.17	0.31	0.75					0.97		1.98
Uniform Delay, d1		24.7	23.8	31.9	12.8					38.6		39.0
Progression Factor		1.00	1.00	0.92	1.49					1.00		1.00
Incremental Delay, d2		0.1	0.3	0.0	0.2					23.7		446.1
Delay (s)		24.8	24.2	29.4	19.3					62.3		485.1
Level of Service		C	C	C	B					E		F
Approach Delay (s)		24.6			20.5			0.0			330.1	
Approach LOS		C			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	162.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	862	0	0	550	86	955	0	409	0	0	0
Future Volume (vph)	192	862	0	0	550	86	955	0	409	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.98		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3113	3421			4690		3433		2733			
Flt Permitted	0.36	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1166	3421			4690		3433		2733			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.85	0.85	0.78	0.92	0.78	0.92	0.92	0.92
Adj. Flow (vph)	221	991	0	0	647	101	1224	0	524	0	0	0
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	320	0	0	0
Lane Group Flow (vph)	221	991	0	0	730	0	1224	0	204	0	0	0
Heavy Vehicles (%)	5%	2%	2%	2%	2%	5%	2%	2%	4%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	52.0	35.0			43.0		25.0		25.0			
Effective Green, g (s)	52.0	35.0			43.0		25.0		25.0			
Actuated g/C Ratio	0.50	0.34			0.42		0.24		0.24			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	910	1162			1957		833		663			
v/s Ratio Prot	c0.04	c0.29			c0.16		c0.36		0.07			
v/s Ratio Perm	0.08											
v/c Ratio	0.24	0.85			0.37		1.47		0.31			
Uniform Delay, d1	13.6	31.6			20.7		39.0		31.9			
Progression Factor	1.04	1.15			1.00		1.00		1.00			
Incremental Delay, d2	0.1	5.0			0.3		217.8		0.6			
Delay (s)	14.3	41.2			21.0		256.8		32.5			
Level of Service	B	D			C		F		C			
Approach Delay (s)		36.3			21.0			189.5			0.0	
Approach LOS		D			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	105.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1222	620	2337	248	388	681
Future Volume (vph)	1222	620	2337	248	388	681
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3303	1599	4988	1229	3242	3374
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3303	1599	4988	1229	3242	3374
Peak-hour factor, PHF	0.87	0.87	0.93	0.93	0.81	0.81
Adj. Flow (vph)	1405	713	2513	267	479	841
RTOR Reduction (vph)	0	319	0	176	0	0
Lane Group Flow (vph)	1405	394	2513	91	479	841
Heavy Vehicles (%)	6%	1%	4%	27%	8%	7%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	31.6	31.6	18.4	56.0
Effective Green, g (s)	25.0	25.0	31.6	31.6	18.4	56.0
Actuated g/C Ratio	0.27	0.27	0.34	0.34	0.20	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	887	429	1694	417	641	2031
v/s Ratio Prot	c0.43	0.25	c0.50	0.07	c0.15	0.25
v/s Ratio Perm						
v/c Ratio	1.58	0.92	1.48	0.22	0.75	0.41
Uniform Delay, d1	34.0	33.0	30.7	21.9	35.1	9.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	268.2	24.8	220.8	1.2	5.1	0.6
Delay (s)	302.2	57.8	251.5	23.1	40.2	10.4
Level of Service	F	E	F	C	D	B
Approach Delay (s)	219.9		229.5			21.2
Approach LOS	F		F			C

Intersection Summary			
HCM 2000 Control Delay	182.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	106.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	692	2265	816	708	245	253
Future Volume (vph)	692	2265	816	708	245	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3471	3343	1583	1719	1538
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3471	3343	1583	1719	1538
Peak-hour factor, PHF	0.86	0.86	0.96	0.96	0.76	0.76
Adj. Flow (vph)	805	2634	850	738	322	333
RTOR Reduction (vph)	0	0	0	513	0	187
Lane Group Flow (vph)	805	2634	850	225	322	146
Heavy Vehicles (%)	1%	4%	8%	2%	5%	5%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	7.0	31.0	18.0	18.0	16.0	16.0
Effective Green, g (s)	7.0	31.0	18.0	18.0	16.0	16.0
Actuated g/C Ratio	0.12	0.53	0.31	0.31	0.27	0.27
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	212	1823	1019	482	466	417
v/s Ratio Prot	c0.45	c0.76	0.25		c0.19	0.09
v/s Ratio Perm				0.14		
v/c Ratio	3.80	1.44	0.83	0.47	0.69	0.35
Uniform Delay, d1	26.0	14.0	19.1	16.6	19.3	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1270.1	203.3	8.0	3.2	4.7	0.7
Delay (s)	1296.1	217.3	27.1	19.8	24.0	18.0
Level of Service	F	F	C	B	C	B
Approach Delay (s)		469.9	23.7		21.0	
Approach LOS		F	C		C	

Intersection Summary			
HCM 2000 Control Delay	293.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.64		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1588	922	123	915	609	783
Future Volume (vph)	1588	922	123	915	609	783
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1468	1752	3438	1680	1538
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1468	1752	3438	1680	1538
Peak-hour factor, PHF	0.95	0.95	0.90	0.90	0.80	0.80
Adj. Flow (vph)	1672	971	137	1017	761	979
RTOR Reduction (vph)	0	459	0	0	0	369
Lane Group Flow (vph)	1672	512	137	1017	761	610
Heavy Vehicles (%)	2%	10%	3%	5%	11%	5%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	62.9	62.9	17.1	86.0	40.0	40.0
Effective Green, g (s)	62.9	62.9	17.1	86.0	40.0	40.0
Actuated g/C Ratio	0.46	0.46	0.12	0.62	0.29	0.29
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1613	669	217	2142	486	445
v/s Ratio Prot	c0.47	0.35	c0.08	0.30	c0.45	0.40
v/s Ratio Perm						
v/c Ratio	1.04	0.77	0.63	0.47	1.57	1.37
Uniform Delay, d1	37.5	31.4	57.5	13.9	49.0	49.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.5	8.2	6.6	0.8	264.5	180.4
Delay (s)	70.0	39.5	64.0	14.7	313.5	229.4
Level of Service	E	D	E	B	F	F
Approach Delay (s)	58.8			20.5	266.2	
Approach LOS	E			C	F	

Intersection Summary			
HCM 2000 Control Delay	116.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	71.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	31	10	349	132	123	23	110	123	28	316	36
Future Vol, veh/h	0	31	10	349	132	123	23	110	123	28	316	36
Peak Hour Factor	0.50	0.50	0.50	0.70	0.70	0.70	0.87	0.87	0.87	0.70	0.70	0.70
Heavy Vehicles, %	0	0	0	2	0	5	0	6	8	14	0	0
Mvmt Flow	0	62	20	499	189	176	26	126	141	40	451	51
Number of Lanes	0	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	14.9	68.9	14.9	115.2
HCM LOS	B	F	B	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	17%	0%	0%	100%	0%	7%
Vol Thru, %	83%	0%	76%	0%	52%	83%
Vol Right, %	0%	100%	24%	0%	48%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	123	41	349	255	380
LT Vol	23	0	0	349	0	28
Through Vol	110	0	31	0	132	316
RT Vol	0	123	10	0	123	36
Lane Flow Rate	153	141	82	499	364	543
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.348	0.295	0.201	1.095	0.712	1.146
Departure Headway (Hd)	8.632	7.921	9.502	8.321	7.423	7.833
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	419	457	380	439	492	467
Service Time	6.332	5.621	7.502	6.021	5.123	5.833
HCM Lane V/C Ratio	0.365	0.309	0.216	1.137	0.74	1.163
HCM Control Delay	15.9	13.9	14.9	99.9	26.4	115.2
HCM Lane LOS	C	B	B	F	D	F
HCM 95th-tile Q	1.5	1.2	0.7	16.1	5.6	18.9

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	13	15	39	6	23	39	277	49	51	519	49
Future Vol, veh/h	8	13	15	39	6	23	39	277	49	51	519	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	83	83	83	79	79	79	66	66	66
Heavy Vehicles, %	25	0	14	0	33	9	0	4	0	4	1	4
Mvmt Flow	11	18	21	47	7	28	49	351	62	77	786	74

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1475	1488	823	1477	1494	382	860	0	0	413	0	0
Stage 1	977	977	-	480	480	-	-	-	-	-	-	-
Stage 2	498	511	-	997	1014	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.5	6.34	7.1	6.83	6.29	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4	3.426	3.5	4.297	3.381	2.2	-	-	2.236	-	-
Pot Cap-1 Maneuver	93	125	356	105	106	650	790	-	-	1135	-	-
Stage 1	274	332	-	571	506	-	-	-	-	-	-	-
Stage 2	514	540	-	297	280	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	76	109	356	78	93	650	790	-	-	1135	-	-
Mov Cap-2 Maneuver	76	109	-	78	93	-	-	-	-	-	-	-
Stage 1	257	309	-	536	475	-	-	-	-	-	-	-
Stage 2	455	507	-	245	261	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	46.9	80	1.1	0.7
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	790	-	-	135	80	650	1135	-	-
HCM Lane V/C Ratio	0.062	-	-	0.376	0.678	0.043	0.068	-	-
HCM Control Delay (s)	9.9	-	-	46.9	115.3	10.8	8.4	-	-
HCM Lane LOS	A	-	-	E	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.6	3.2	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	11	6	46	11	11	6	402	285	17	169	17
Future Vol, veh/h	6	11	6	46	11	11	6	402	285	17	169	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	12	7	51	12	12	7	447	317	19	188	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	868	1014	198	865	865	606	207	0	0	764	0	0
Stage 1	236	236	-	620	620	-	-	-	-	-	-	-
Stage 2	632	778	-	245	245	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	273	239	843	274	292	497	1364	-	-	849	-	-
Stage 1	767	710	-	476	480	-	-	-	-	-	-	-
Stage 2	468	407	-	759	703	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	251	231	843	254	282	497	1364	-	-	849	-	-
Mov Cap-2 Maneuver	251	231	-	254	282	-	-	-	-	-	-	-
Stage 1	760	692	-	472	476	-	-	-	-	-	-	-
Stage 2	441	403	-	721	685	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.5	22.5	0.1	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1364	-	-	292	281	849	-	-
HCM Lane V/C Ratio	0.005	-	-	0.088	0.269	0.022	-	-
HCM Control Delay (s)	7.7	0	-	18.5	22.5	9.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	1.1	0.1	-	-

Intersection	
Int Delay, s/veh	96

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	682	348	136	10	46	186
Future Vol, veh/h	682	348	136	10	46	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	758	387	151	11	51	207

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	364	51	258	0	-	0
Stage 1	51	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 635	1017	1307	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	~ 741	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 561	1017	1307	-	-	-
Mov Cap-2 Maneuver	~ 561	-	-	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	~ 741	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	130.1	7.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1307	-	561	1017	-	-
HCM Lane V/C Ratio	0.116	-	1.351	0.38	-	-
HCM Control Delay (s)	8.1	-	191	10.7	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	33.2	1.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	1.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	207	1362	451	0
Future Vol, veh/h	0	20	207	1362	451	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	67	67	75	75
Heavy Vehicles, %	2	2	1	2	2	0
Mvmt Flow	0	40	309	2033	601	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3252	601	601	0	-	0
Stage 1	601	-	-	-	-	-
Stage 2	2651	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	10	500	981	-	-	-
Stage 1	547	-	-	-	-	-
Stage 2	53	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	10	500	981	-	-	-
Mov Cap-2 Maneuver	10	-	-	-	-	-
Stage 1	547	-	-	-	-	-
Stage 2	53	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	1.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	981	-	500	-	-
HCM Lane V/C Ratio	0.315	-	0.08	-	-
HCM Control Delay (s)	10.3	0	12.8	-	-
HCM Lane LOS	B	A	B	-	-
HCM 95th %tile Q(veh)	1.4	-	0.3	-	-

Intersection	
Int Delay, s/veh	94.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	6	40	0	5	36	1566	86	13	452	0
Future Vol, veh/h	0	0	6	40	0	5	36	1566	86	13	452	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	71	71	71	71	71	71	70	70	70
Heavy Vehicles, %	0	0	33	17	0	50	6	1	7	17	3	0
Mvmt Flow	0	0	16	56	0	7	51	2206	121	19	646	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3056	3113	646	3061	3053	2267	646	0	0	2327	0	0
Stage 1	684	684	-	2369	2369	-	-	-	-	-	-	-
Stage 2	2372	2429	-	692	684	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.53	7.27	6.5	6.7	4.16	-	-	4.27	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.597	3.653	4	3.75	2.254	-	-	2.353	-	-
Pot Cap-1 Maneuver	8	12	421	~ 7	13	37	921	-	-	188	-	-
Stage 1	442	452	-	~ 42	68	-	-	-	-	-	-	-
Stage 2	47	64	-	411	452	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	6	10	421	~ 6	11	37	921	-	-	188	-	-
Mov Cap-2 Maneuver	6	10	-	~ 6	11	-	-	-	-	-	-	-
Stage 1	442	381	-	~ 42	68	-	-	-	-	-	-	-
Stage 2	38	64	-	333	381	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.9	$ 4650.9	0.2	0.7
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	921	-	-	421	7	188	-	-
HCM Lane V/C Ratio	0.055	-	-	0.038	9.054	0.099	-	-
HCM Control Delay (s)	9.1	0	-	13.9	$ 4650.9	26.2	0	-
HCM Lane LOS	A	A	-	B	F	D	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	9.5	0.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	110.7					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	288	1400	0	0	498
Future Vol, veh/h	0	288	1400	0	0	498
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	76	95	92	92	80
Heavy Vehicles, %	2	3	2	2	2	4
Mvmt Flow	0	379	1474	0	0	623

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1474	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.245	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3285	-	-	-	-
Pot Cap-1 Maneuver	0	~ 154	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	~ 154	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 723	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	154	-
HCM Lane V/C Ratio	-	2.461	-
HCM Control Delay (s)	-	$ 723	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	32.5	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	533	8	315	301	339	11	0	1450	113	17	3
Future Volume (vph)	6	533	8	315	301	339	11	0	1450	113	17	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	16	12
Total Lost time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95		0.97	0.95			1.00	0.88		1.00	
Frt	1.00	1.00		1.00	0.92			1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	
Satd. Flow (prot)	1357	3532		3155	3308			1491	2842		2059	
Flt Permitted	0.95	1.00		0.95	1.00			0.69	1.00		0.75	
Satd. Flow (perm)	1357	3532		3155	3308			1089	2842		1610	
Peak-hour factor, PHF	0.69	0.69	0.69	0.88	0.88	0.88	0.93	0.93	0.93	0.81	0.81	0.81
Adj. Flow (vph)	9	772	12	358	342	385	12	0	1559	140	21	4
RTOR Reduction (vph)	0	1	0	0	121	0	0	0	0	0	1	0
Lane Group Flow (vph)	9	783	0	358	606	0	0	12	1559	0	164	0
Heavy Vehicles (%)	33%	2%	0%	11%	1%	0%	17%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	6	2		1	5			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	4.4	27.3		14.3	38.2			20.2	20.2		20.2	
Effective Green, g (s)	4.4	27.3		14.3	38.2			20.2	20.2		20.2	
Actuated g/C Ratio	0.06	0.34		0.18	0.48			0.25	0.25		0.25	
Clearance Time (s)	5.0	6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)	2.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	74	1208		565	1583			275	719		407	
v/s Ratio Prot	0.01	c0.22		c0.11	0.18							
v/s Ratio Perm								0.01	c0.55		0.10	
v/c Ratio	0.12	0.65		0.63	0.38			0.04	2.17		0.40	
Uniform Delay, d1	35.9	22.2		30.3	13.3			22.5	29.8		24.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.3	1.2		2.3	0.2			0.1	530.3		0.7	
Delay (s)	36.1	23.4		32.6	13.4			22.6	560.1		25.4	
Level of Service	D	C		C	B			C	F		C	
Approach Delay (s)		23.5			19.8			556.0			25.4	
Approach LOS		C			B			F			C	

Intersection Summary			
HCM 2000 Control Delay	254.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1388	708	764	692	0	0	0	0	434	0	277
Future Volume (vph)	0	1388	708	764	692	0	0	0	0	434	0	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	11	10	11	12	12	12	12	12	12	12
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.97		0.88
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		6040	1546	3236	3455					3502		2814
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		6040	1546	3236	3455					3502		2814
Peak-hour factor, PHF	0.92	0.85	0.85	0.94	0.94	0.92	0.92	0.92	0.92	0.75	0.25	0.75
Adj. Flow (vph)	0	1633	833	813	736	0	0	0	0	579	0	369
RTOR Reduction (vph)	0	0	364	0	0	0	0	0	0	0	0	279
Lane Group Flow (vph)	0	1633	469	813	736	0	0	0	0	579	0	90
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%	2%	2%	2%	0%	0%	1%
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		6	6	5	2 5					3		3
Permitted Phases												
Actuated Green, G (s)		35.0	35.0	25.0	66.0					25.0		25.0
Effective Green, g (s)		35.0	35.0	25.0	66.0					25.0		25.0
Actuated g/C Ratio		0.34	0.34	0.24	0.64					0.24		0.24
Clearance Time (s)		6.0	6.0	6.0						6.0		6.0
Vehicle Extension (s)		5.0	5.0	4.0						5.0		5.0
Lane Grp Cap (vph)		2052	525	785	2213					850		683
v/s Ratio Prot		0.27	c0.30	c0.25	0.21					c0.17		0.03
v/s Ratio Perm												
v/c Ratio		0.80	0.89	1.04	0.33					0.68		0.13
Uniform Delay, d1		30.8	32.2	39.0	8.4					35.4		30.5
Progression Factor		1.00	1.00	1.29	1.36					1.00		1.00
Incremental Delay, d2		2.6	18.5	29.8	0.1					2.9		0.2
Delay (s)		33.3	50.7	80.2	11.6					38.3		30.7
Level of Service		C	D	F	B					D		C
Approach Delay (s)		39.2			47.6			0.0			35.3	
Approach LOS		D			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	828	994	0	0	1121	454	335	0	698	0	0	0
Future Volume (vph)	828	994	0	0	1121	454	335	0	698	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			11%			0%			0%	
Total Lost time (s)	6.0	6.0			6.0		6.0		6.0			
Lane Util. Factor	0.97	0.95			0.91		0.97		0.88			
Frt	1.00	1.00			0.96		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3236	3455			4657		3433		2814			
Flt Permitted	0.11	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	389	3455			4657		3433		2814			
Peak-hour factor, PHF	0.87	0.87	0.92	0.92	0.90	0.90	0.94	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	952	1143	0	0	1246	504	356	0	743	0	0	0
RTOR Reduction (vph)	0	0	0	0	71	0	0	0	563	0	0	0
Lane Group Flow (vph)	952	1143	0	0	1679	0	356	0	180	0	0	0
Heavy Vehicles (%)	1%	1%	2%	2%	1%	0%	2%	2%	1%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Prot		Prot			
Protected Phases	1	6			2		3		3			
Permitted Phases	6											
Actuated Green, G (s)	60.0	35.0			35.0		25.0		25.0			
Effective Green, g (s)	60.0	35.0			35.0		25.0		25.0			
Actuated g/C Ratio	0.58	0.34			0.34		0.24		0.24			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	4.0	5.0			5.0		5.0		5.0			
Lane Grp Cap (vph)	917	1174			1582		833		683			
v/s Ratio Prot	c0.25	0.33			c0.36		c0.10		0.06			
v/s Ratio Perm	0.35											
v/c Ratio	1.04	0.97			1.06		0.43		0.26			
Uniform Delay, d1	30.7	33.5			34.0		33.0		31.6			
Progression Factor	1.58	0.63			1.00		1.00		1.00			
Incremental Delay, d2	33.9	15.0			41.0		0.7		0.4			
Delay (s)	82.3	36.0			75.0		33.7		32.0			
Level of Service	F	D			E		C		C			
Approach Delay (s)		57.1			75.0			32.5			0.0	
Approach LOS		E			E			C			A	

Intersection Summary			
HCM 2000 Control Delay	57.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1162	197	2000	313	866	1588
Future Volume (vph)	1162	197	2000	313	866	1588
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3367	1509	5085	1323	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3367	1509	5085	1323	3433	3539
Peak-hour factor, PHF	0.89	0.89	0.95	0.95	0.84	0.84
Adj. Flow (vph)	1306	221	2105	329	1031	1890
RTOR Reduction (vph)	0	140	0	223	0	0
Lane Group Flow (vph)	1306	81	2105	106	1031	1890
Heavy Vehicles (%)	4%	7%	2%	18%	2%	2%
Turn Type	Prot	Prot	NA	Prot	Prot	NA
Protected Phases	7	7	6	6	5	2
Permitted Phases						
Actuated Green, G (s)	25.0	25.0	30.0	30.0	20.0	56.0
Effective Green, g (s)	25.0	25.0	30.0	30.0	20.0	56.0
Actuated g/C Ratio	0.27	0.27	0.32	0.32	0.22	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	905	405	1640	426	738	2131
v/s Ratio Prot	c0.39	0.05	c0.41	0.08	c0.30	0.53
v/s Ratio Perm						
v/c Ratio	1.44	0.20	1.28	0.25	1.40	0.89
Uniform Delay, d1	34.0	26.3	31.5	23.2	36.5	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	205.7	0.3	132.4	1.4	186.9	5.9
Delay (s)	239.7	26.6	163.9	24.6	223.4	21.7
Level of Service	F	C	F	C	F	C
Approach Delay (s)	208.8		145.1			92.9
Approach LOS	F		F			F

Intersection Summary			
HCM 2000 Control Delay	137.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	111.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	353	1844	1433	273	573	1021
Future Volume (vph)	353	1844	1433	273	573	1021
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	3539	1583	1787	1599
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1787	3539	3539	1583	1787	1599
Peak-hour factor, PHF	0.88	0.88	0.93	0.93	0.87	0.87
Adj. Flow (vph)	401	2095	1541	294	659	1174
RTOR Reduction (vph)	0	0	0	204	0	165
Lane Group Flow (vph)	401	2095	1541	90	659	1009
Heavy Vehicles (%)	1%	2%	2%	2%	1%	1%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	5.0	29.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	5.0	29.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.08	0.49	0.31	0.31	0.31	0.31
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	151	1739	1079	482	545	487
v/s Ratio Prot	c0.22	0.59	c0.44		0.37	c0.63
v/s Ratio Perm				0.06		
v/c Ratio	2.66	1.20	1.43	0.19	1.21	2.07
Uniform Delay, d1	27.0	15.0	20.5	15.1	20.5	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	763.7	97.9	198.1	0.9	110.4	489.0
Delay (s)	790.7	112.9	218.6	16.0	130.9	509.5
Level of Service	F	F	F	B	F	F
Approach Delay (s)		221.8	186.1		373.4	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	256.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.86		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1070	1347	463	1470	236	534
Future Volume (vph)	1070	1347	463	1470	236	534
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1568	1787	3539	1636	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1568	1787	3539	1636	1583
Peak-hour factor, PHF	0.89	0.89	0.86	0.86	0.88	0.88
Adj. Flow (vph)	1202	1513	538	1709	268	607
RTOR Reduction (vph)	0	414	0	0	0	426
Lane Group Flow (vph)	1202	1099	538	1709	268	181
Heavy Vehicles (%)	2%	3%	1%	2%	14%	2%
Turn Type	NA	Prot	Prot	NA	Prot	Prot
Protected Phases	6	6	5	2	7	7
Permitted Phases						
Actuated Green, G (s)	41.6	41.6	47.8	95.4	30.6	30.6
Effective Green, g (s)	41.6	41.6	47.8	95.4	30.6	30.6
Actuated g/C Ratio	0.30	0.30	0.35	0.69	0.22	0.22
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1066	472	618	2446	362	351
v/s Ratio Prot	0.34	c0.70	c0.30	0.48	c0.16	0.11
v/s Ratio Perm						
v/c Ratio	1.13	2.33	0.87	0.70	0.74	0.52
Uniform Delay, d1	48.2	48.2	42.2	12.7	50.0	47.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	69.7	604.8	13.1	1.7	8.4	1.7
Delay (s)	117.9	653.0	55.3	14.4	58.4	48.9
Level of Service	F	F	E	B	E	D
Approach Delay (s)	416.1			24.2	51.8	
Approach LOS	F			C	D	

Intersection Summary			
HCM 2000 Control Delay	210.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	119.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	37.2
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	71	90	24	273	24	19	2	337	299	72	109	3
Future Vol, veh/h	71	90	24	273	24	19	2	337	299	72	109	3
Peak Hour Factor	0.71	0.71	0.71	0.90	0.90	0.90	0.75	0.75	0.75	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	2	0	10	0	1	3	11	4	0
Mvmt Flow	100	127	34	303	27	21	3	449	399	82	124	3
Number of Lanes	0	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	25.4	30.8	47.2	21.9
HCM LOS	D	D	E	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	1%	0%	38%	100%	0%	39%
Vol Thru, %	99%	0%	49%	0%	56%	59%
Vol Right, %	0%	100%	13%	0%	44%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	339	299	185	273	43	184
LT Vol	2	0	71	273	0	72
Through Vol	337	0	90	0	24	109
RT Vol	0	299	24	0	19	3
Lane Flow Rate	452	399	261	303	48	209
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.968	0.775	0.63	0.747	0.106	0.529
Departure Headway (Hd)	7.821	7.114	8.707	8.864	7.992	9.106
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	510	417	406	446	397
Service Time	5.521	4.814	6.707	6.664	5.791	7.124
HCM Lane V/C Ratio	0.97	0.782	0.626	0.746	0.108	0.526
HCM Control Delay	62.1	30.2	25.4	33.8	11.7	21.9
HCM Lane LOS	F	D	D	D	B	C
HCM 95th-tile Q	12	6.9	4.2	6	0.4	3

Intersection												
Int Delay, s/veh	7.4											
Movement	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations												
Traffic Vol, veh/h	6	11	8	68	8	39	14	521	55	22	424	19
Future Vol, veh/h	6	11	8	68	8	39	14	521	55	22	424	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	80	85	-	-	165	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	87	87	87	73	73	73	90	90	90
Heavy Vehicles, %	0	0	25	3	25	0	0	3	0	0	1	0
Mvmt Flow	9	17	12	78	9	45	19	714	75	24	471	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1347	1357	482	1334	1330	752	492	0	0	789	0	0
Stage 1	530	530	-	790	790	-	-	-	-	-	-	-
Stage 2	817	827	-	544	540	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.13	6.75	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.527	4.225	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	129	150	540	130	139	413	1082	-	-	840	-	-
Stage 1	536	530	-	382	370	-	-	-	-	-	-	-
Stage 2	373	389	-	521	486	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	105	143	540	112	133	413	1082	-	-	840	-	-
Mov Cap-2 Maneuver	105	143	-	112	133	-	-	-	-	-	-	-
Stage 1	526	515	-	375	363	-	-	-	-	-	-	-
Stage 2	318	382	-	478	472	-	-	-	-	-	-	-
Approach	**EB**			**WB**			**NB**			**SB**		
HCM Control Delay, s	32.7			71.6			0.2			0.4		
HCM LOS	D			F								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1082	-	-	168	114	413	840	-	-
HCM Lane V/C Ratio	0.018	-	-	0.229	0.766	0.109	0.029	-	-
HCM Control Delay (s)	8.4	-	-	32.7	100.8	14.8	9.4	-	-
HCM Lane LOS	A	-	-	D	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	4.3	0.4	0.1	-	-

Intersection	
Int Delay, s/veh	51.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	6	17	6	267	11	6	0	215	108	6	528	6
Future Vol, veh/h	6	17	6	267	11	6	0	215	108	6	528	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	19	7	297	12	7	0	239	120	7	587	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	914	964	591	917	907	299	594	0	0	359	0	0
Stage 1	605	605	-	299	299	-	-	-	-	-	-	-
Stage 2	309	359	-	618	608	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	254	255	507	~ 253	276	741	982	-	-	1200	-	-
Stage 1	485	487	-	710	666	-	-	-	-	-	-	-
Stage 2	701	627	-	477	486	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	242	253	507	~ 234	274	741	982	-	-	1200	-	-
Mov Cap-2 Maneuver	242	253	-	~ 234	274	-	-	-	-	-	-	-
Stage 1	485	483	-	710	666	-	-	-	-	-	-	-
Stage 2	682	627	-	448	482	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.6	211.1	0	0.1
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	982	-	-	279	239	1200	-	-
HCM Lane V/C Ratio	-	-	-	0.115	1.32	0.006	-	-
HCM Control Delay (s)	0	-	-	19.6	211.1	8	0	-
HCM Lane LOS	A	-	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	16.7	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	141.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	289	155	394	34	28	772
Future Vol, veh/h	289	155	394	34	28	772
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	290	100	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	321	172	438	38	31	858

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	945	31	889	0	-	0
Stage 1	31	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 291	1043	762	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 124	1043	762	-	-	-
Mov Cap-2 Maneuver	~ 124	-	-	-	-	-
Stage 1	422	-	-	-	-	-
Stage 2	391	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 519.9	14.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	762	-	124	1043	-	-
HCM Lane V/C Ratio	0.575	-	2.59	0.165	-	-
HCM Control Delay (s)	15.9	-	$ 793.9	9.1	-	-
HCM Lane LOS	C	-	F	A	-	-
HCM 95th %tile Q(veh)	3.7	-	28.8	0.6	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	35.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	158	25	548	1340	2
Future Vol, veh/h	2	158	25	548	1340	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	85	85	89	89
Heavy Vehicles, %	0	1	0	1	1	0
Mvmt Flow	3	232	29	645	1506	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2210	1507	1508	0	-	0
Stage 1	1507	-	-	-	-	-
Stage 2	703	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.2	-	-	-
Pot Cap-1 Maneuver	49	~ 149	450	-	-	-
Stage 1	204	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	44	~ 149	450	-	-	-
Mov Cap-2 Maneuver	44	-	-	-	-	-
Stage 1	184	-	-	-	-	-
Stage 2	495	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 364.3	0.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	450	-	145	-	-
HCM Lane V/C Ratio	0.065	-	1.623	-	-
HCM Control Delay (s)	13.6	0	$ 364.3	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	16.6	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	335.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	31	52	0	14	72	559	84	17	1511	27
Future Vol, veh/h	10	0	31	52	0	14	72	559	84	17	1511	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	83	83	83	94	94	94	89	89	89
Heavy Vehicles, %	0	0	0	12	0	29	0	1	12	22	1	0
Mvmt Flow	16	0	49	63	0	17	77	595	89	19	1698	30

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2553	2589	1713	2570	2560	640	1728	0	0	684	0	0
Stage 1	1751	1751	-	794	794	-	-	-	-	-	-	-
Stage 2	802	838	-	1776	1766	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.22	6.5	6.49	4.1	-	-	4.32	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.22	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.608	4	3.561	2.2	-	-	2.398	-	-
Pot Cap-1 Maneuver	18	26	113	~ 16	27	430	370	-	-	823	-	-
Stage 1	110	141	-	367	403	-	-	-	-	-	-	-
Stage 2	381	384	-	99	138	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 7	6	113	~ 3	7	430	370	-	-	823	-	-
Mov Cap-2 Maneuver	~ 7	6	-	~ 3	7	-	-	-	-	-	-	-
Stage 1	72	52	-	242	266	-	-	-	-	-	-	-
Stage 2	241	253	-	~ 21	51	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 1115.8	$ 10261.3	1.7	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	370	-	-	24	4	823	-	-
HCM Lane V/C Ratio	0.207	-	-	2.712	19.88	0.023	-	-
HCM Control Delay (s)	17.3	0	-	$ 1115.8	$ 10261.3	9.5	0	-
HCM Lane LOS	C	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0.8	-	-	8.1	11.9	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	89	626	0	0	1594
Future Vol, veh/h	0	89	626	0	0	1594
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	100	100	92	92	100
Heavy Vehicles, %	2	13	1	2	2	1
Mvmt Flow	0	89	626	0	0	1594

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	626	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.395	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.4235	-	-	-	-
Pot Cap-1 Maneuver	0	459	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	459	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	459	-
HCM Lane V/C Ratio	-	0.194	-
HCM Control Delay (s)	-	14.7	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.7	-

APPENDIX H
Site Development Plan

SITE NOTES:

1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES SHALL BE THERMOPLASTIC MATERIAL. THERMOPLASTIC MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO AASHTO M249. (ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE CITY OF PORTSMOUTH AND PEASE DEVELOPMENT AUTHORITY.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
11. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
12. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
13. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
14. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
15. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
16. THE SITE ENGINEER SHALL OBSERVE THE CONSTRUCTION AND SHALL SUBMIT TO THE PDA A LETTER STATING THAT THE PROJECT WAS COMPLETED IN ACCORDANCE WITH THE PLANS.
17. CONSTRUCTION CANNOT BEGIN UNTIL A DETERMINATION OF NO OBJECTION IS ISSUED BY FAA. TO OBTAIN THE FAA DETERMINATION, THE CONTRACTOR/DEVELOPER MUST SUBMIT TO FAA A NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION FORM 7460-1, AVAILABLE AT "https://www.faa.gov/documentLibrary/media/Form/FAA_Form_7460-1_042023.pdf".
18. PROPERTY MANAGER WILL BE RESPONSIBLE FOR TIMELY SNOW REMOVAL FROM ALL PUBLIC WALKS, DRIVES, AND AIRSIDE PAVEMENT AREAS ON-SITE. SNOW SHALL BE HAULED OFF-SITE AND LEGALLY DISPOSED OF, WHEN NECESSARY, WHEN SNOW STORAGE AREAS HAVE REACHED CAPACITY.
19. RETAINING WALL SHALL BE DESIGNED AND STAMPED BY A NEW HAMPSHIRE LICENSED PROFESSIONAL ENGINEER AND SHALL BE SUBMITTED TO PEASE DEVELOPMENT AUTHORITY FOR REVIEW.

SITE DATA:
LOCATION: TAX MAP 308, LOT 1
80 ROCHESTER AVENUE
PORTSMOUTH, NEW HAMPSHIRE

ZONING DISTRICT: INDUSTRIAL
ALLOWED USE: INDUSTRIAL / WAREHOUSE

DIMENSIONAL REQUIREMENTS:	REQUIRED	PROPOSED
MINIMUM LOT AREA:	10 ACRES	±10.9 ACRES
MINIMUM STREET FRONTAGE:	200 FT	±1,200 FT
MINIMUM SETBACKS:		
• FRONT:	70 FT	±51 FT(1)
• SIDE:	50 FT	±202 FT
• REAR:	50 FT	±28.4 FT(2)
MAXIMUM BUILDING HEIGHT:	PER FAA	36 FT
MINIMUM OPEN SPACE:	25%	±30%

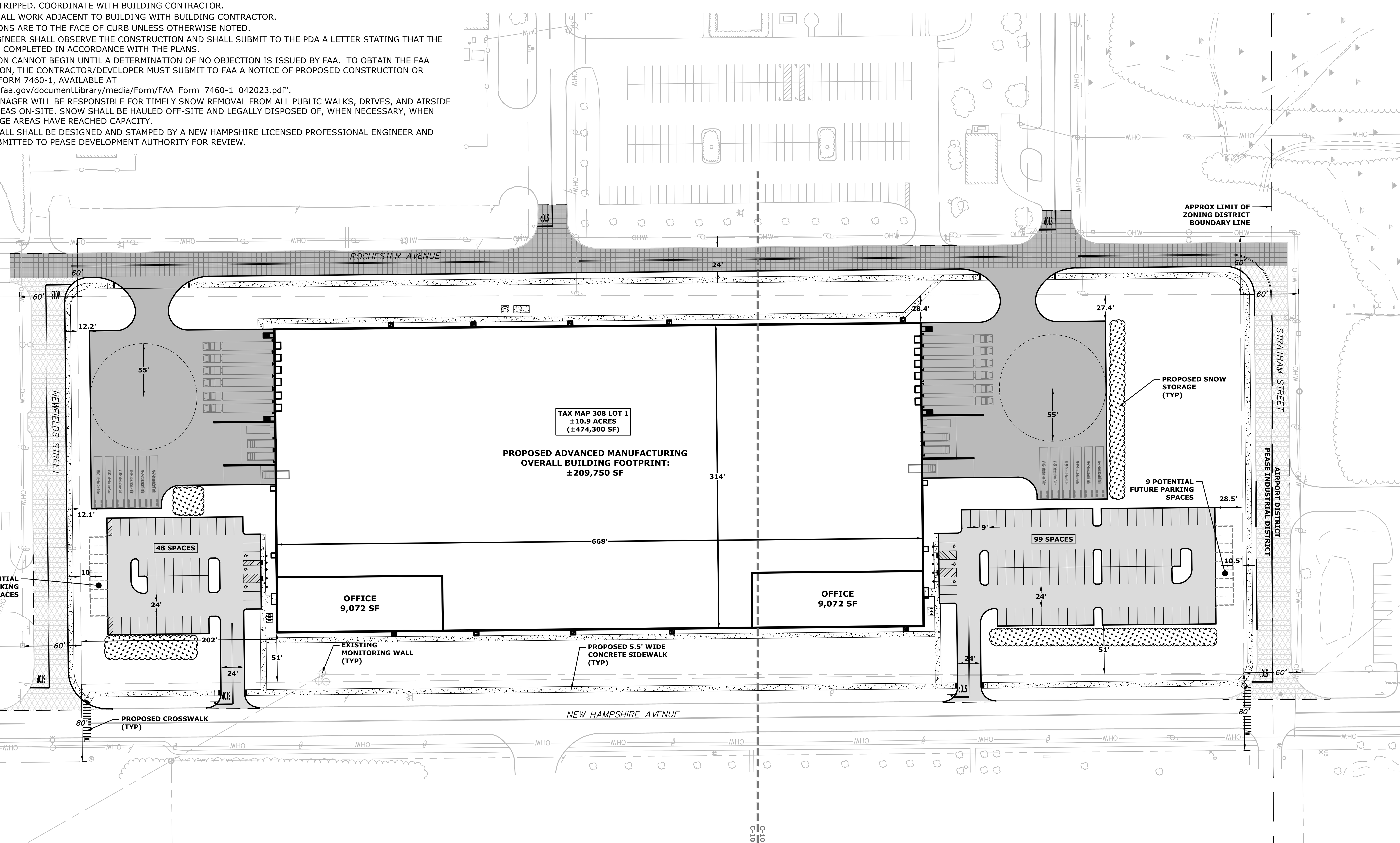
(1) - ON NOVEMBER 15, 2022 THE CITY OF PORTSMOUTH ZONING BOARD OF ADJUSTMENT VOTED TO RECOMMEND APPROVAL TO THE PDA BOARD FOR A VARIANCE FROM PART 304.03(C) TO ALLOW A 51 FOOT FRONT YARD WHERE 70 FEET IS REQUIRED.
(2) - VARIANCE REQUIRED FROM PART 304.03(E) OF THE PEASE INTERNATIONAL TRADEPORT ZONING ORDINANCE TO ALLOW FOR A ±28.4 FOOT REAR YARD WHERE 70 FEET IS REQUIRED.

PARKING REQUIREMENTS:	REQUIRED	PROPOSED
PARKING STALL LAYOUT:		
• STANDARD 90°	WIDTH: 8.5' MIN AREA: 160 SF MIN	9' X 18' (162 SF)
DRIVE AISLE WIDTH:		
• 90° (2-WAY TRAFFIC)	24 FT	24 FT (MIN)
PARKING SPACE REQUIREMENTS: INDUSTRIAL: 2 / 3 EMPLOYEES (LARGEST SHIFT) +1 / COMPANY-OWNED-VEHICLE = 161 EMPLOYEES x 2/3 EMPLOYEES) + 2 COMPANY-OWNED-VEHICLE =	110 SPACES	
OFFICE: 1 / 2 EMPLOYEES = 73 EMPLOYEES x (1 / 2 EMPLOYEES) =	37 SPACES	
TOTAL REQUIRED PARKING:	147 SPACES	147 SPACES(1)

(1) - SIX (6) ADA SPACES PROVIDED

LEGEND

PROPOSED LEASE LINE
PROPOSED CONCRETE
PROPOSED STANDARD DUTY PAVEMENT SECTION
PROPOSED HEAVY DUTY PAVEMENT SECTION
PROPOSED RECLAIM AND RE-PAVE
PROPOSED MILL AND OVERLAY
PROPOSED SNOW STORAGE AREA
APPROXIMATE LIMIT OF SAWCUT
PROPOSED LIGHT POLE BASE
EXISTING PROPOSED SIGN
PROPOSED BOLLARD



SCALE IN FEET
0 60' 120'
GRAPHIC SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
1/25/23

STATE OF NEW HAMPSHIRE NEIL A. HANSEN No. 15227 LICENSED PROFESSIONAL ENGINEER
1/25/23

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

OVERALL SITE PLAN

SCALE: AS SHOWN

C-102

Last Save Date: January 24, 2023 5:03 PM By: CML
Plot Date: Wednesday, January 25, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: O-Site

APPENDIX I
Traffic Control Signal Plans

SIGN 9"X 12" 1 EACH

R10-3A(R) BLACK ON WHITE

1 MOUNTED OVER PUSH BUTTON

SIGN 9"X 12" 5 EACH

R10-3A(L) BLACK ON WHITE

5 MOUNTED OVER PUSH BUTTONS

SIGN 24"X 30" 2 EACH

R3-5L ONLY BLACK ON WHITE

MOUNTED ON MAST ARM NEXT TO LEFT TURN SIGNAL.

SIGN 30"X 30" 4 EACH

R3-7L LEFT LANE MUST TURN LEFT BLACK ON WHITE

1 T.S. POST MOUNTED

SIGN 24"X 30" 2 EACH

R4-7

1 T.S. POST MOUNTED (PAIR)

SIGN 30"X 30" 1 EACH

C ONLY ONLY

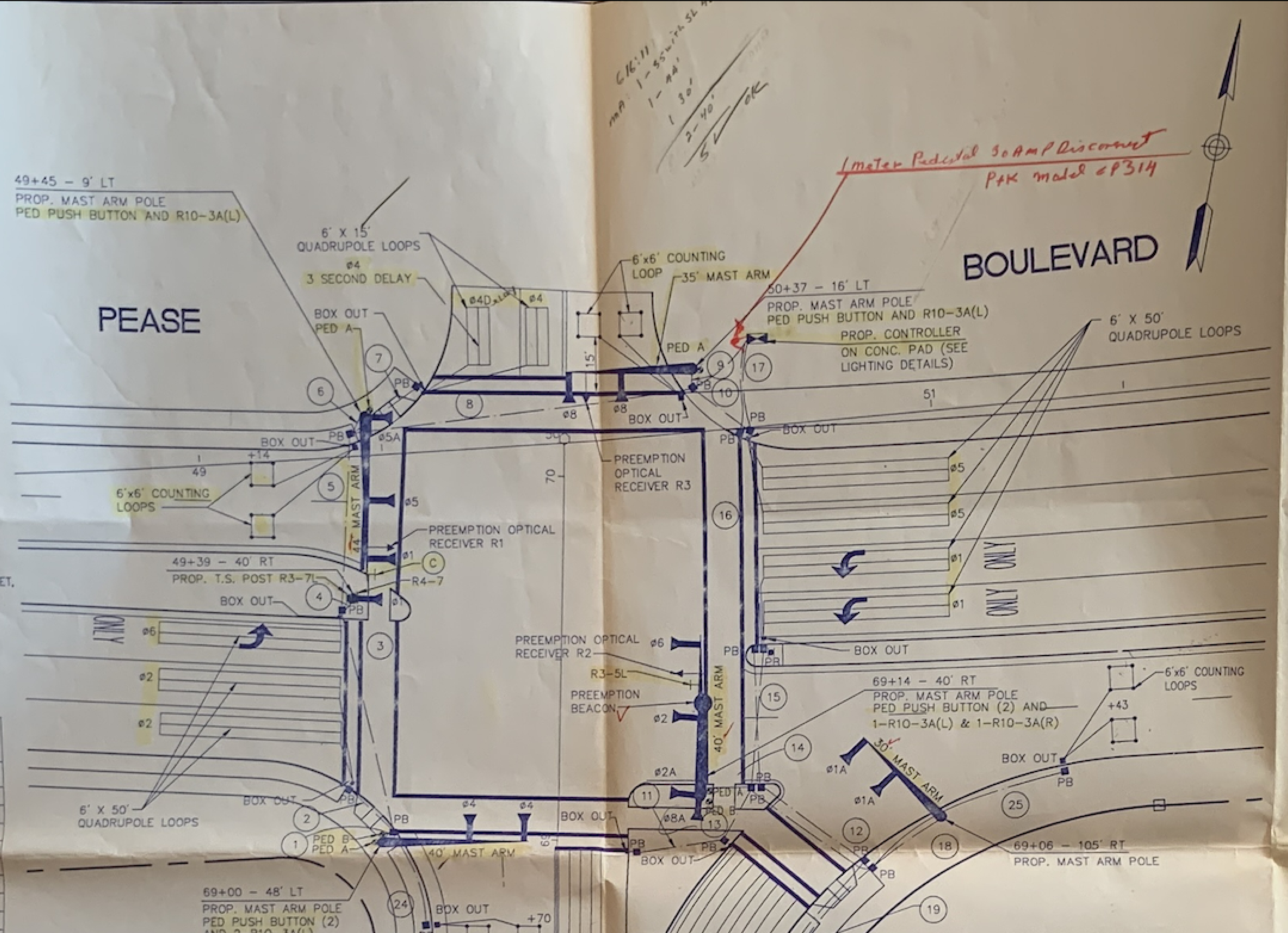
MAST ARM MOUNTED

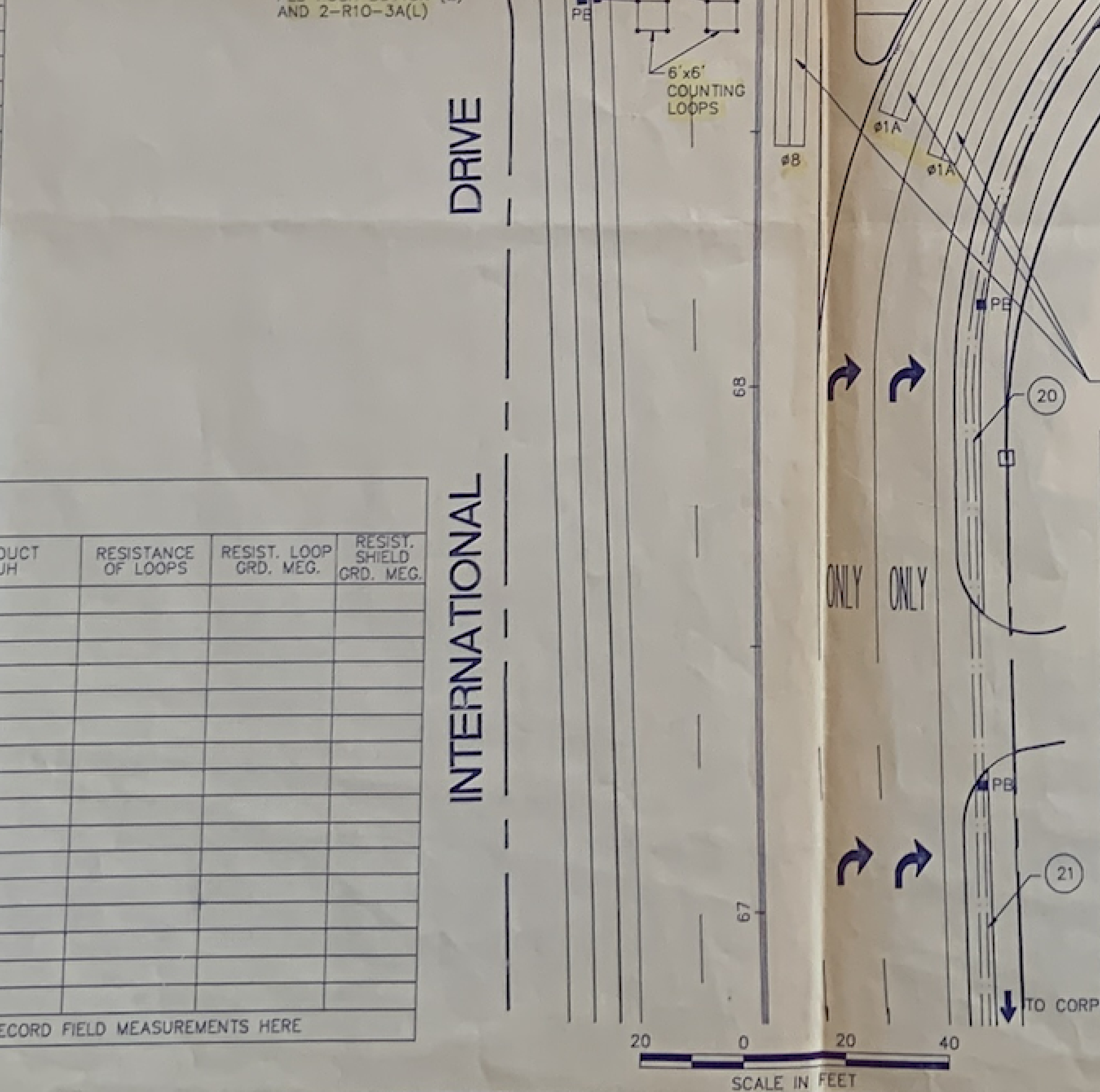
PULL BOX SCHEDULE

49+36 - 42' RT
49+42 - 05' LT
49+61 - 17' LT
50+36 - 11' LT
50+51 - 01' RT (2)
64+55 - 44' RT (SHEET 36)
65+45 - 44' RT (SHEET 34)
66+35 - 44' RT (SHEET 34)
67+25 - 44' RT
68+15 - 44' RT
68+70 - 35' LT
68+93 - 22' RT
68+95 - 85' RT (2)
69+02 - 45' LT
69+01 - 46' RT
69+20 - 54' RT (2)
69+54 - 56' RT (2)

NOTES:

1. SIGNS MOUNTED ON MAST ARMS AND T.S. POSTS SHOWN ON THIS SHEET. OTHER POST MOUNTED SIGNS SHOWN ON SHEET 41.
2. FOR PAVEMENT MARKINGS SEE SHEET 41.
3. QUADRUPLE LOOPS TO HAVE 2-4-2 LOOP WIRE CONFIGURATION; 6'x6' LOOPS TO HAVE 3 TURNS.





CONDUIT SCHEDULE

I.D.	STATION TO STATION	NO.	LENGTH	SCHEDULE TYPE	REMARKS
1	69+00 - 48' LT — 69+02 - 45' LT	1	4'	40	FROM MAST ARM
2	69+02 - 45' LT — 69+14 - 58' LT	1	16'	40	
3	69+02 - 45' LT — 49+36 - 42' RT	1	61'	80	
4	49+36 - 42' RT — 49+39 - 40' RT	1	4'	40	TO TS POST
5	49+39 - 40' RT — 49+42 - 05' LT	1	46'	80	
6	49+42 - 05' LT — 49+45 - 09' LT	1	5'	40	TO MAST ARM
7	49+42 - 05' LT — 49+61 - 17' LT	1	21'	40	
8	49+42 - 05' LT — 50+36 - 11' LT	1	94'	80	
9	50+37 - 16' LT — 50+36 - 11' LT	1	4'	40	FROM MAST ARM
10	50+36 - 11' LT — 50+64 - 22' LT	1	20'	40	TO CONTROLLER
11	68+97 - 22' RT — 69+01 - 46' RT	1	23'	40	
12	68+95 - 85 RT — 69+20 - 54' RT	2	40'	80	1 POWER SERVICE
13	69+01 - 46' RT — 69+20 - 54' RT	1	20'	40	
14	69+17 - 40' RT — 69+20 - 54' RT	1	13'	40	
15	69+20 - 54' RT — 69+54 - 56' RT	2	32'	80	1 POWER SERVICE
16	69+54 - 56' RT — 50+51 - 01' RT	2	59'	80	1 POWER SERVICE
17	50+51 - 01' RT — 50+64 - 22' LT	2	26'	40	1 POWER SERVICE
18	68+95 - 85 RT — 69+06 - 105' RT	1	23'	40	TO MAST ARM
19	68+95 - 85' RT — 68+15 - 44' RT	1	90'	40	
20	68+15 - 44' RT — 67+25 - 44' RT	1•	90'	80	•SEE SHT. 8 TRNCH DTL.
21	67+25 - 44' RT — 66+35 - 44' RT	1•	90'	40	•SEE SHT. 8 TRNCH DTL.
22	66+35 - 44' RT — 65+45 - 44' RT	1•	90'	40	•SEE SHT. 8 TRNCH DTL.
23	65+45 - 44' RT — 64+55 - 44' RT	1•	90'	40	•SEE SHT. 8 TRNCH DTL.
24	68+70 - 35' LT - 69+02 - 45' LT	1	35'	40	
25	68+95 - 85' RT - 51+30 - 98' RT	1	60'	40	

DETECTOR SCHEDULE

DETECTOR				AMPLIFIER		INDUCT UH	RESISTANCE OF LOOPS	RESIST. LOOP GRD. MEG.	RESIST. SHIELD GRD. MEG.
STREET	DIRECTION	LANE	ø	NO.	CHANNEL				
PEASE BOULEVARD	EASTBOUND	LEFT	6	1	1				
PEASE BOULEVARD	EASTBOUND	CENTER & RIGHT	2	1	2				
PEASE BOULEVARD	WESTBOUND	LEFT & CENTER	1	2	1				
PEASE BOULEVARD	WESTBOUND	CENTER & RIGHT	5	2	2				
INTERNATIONAL DRIVE	NORTHBOUND	LEFT	8	3	1				
INTERNATIONAL DRIVE	NORTHBOUND	CENTER & RIGHT	1	3	2				
DRIVE	SOUTHBOUND	LEFT	4	4	1				
DRIVE	SOUTHBOUND	RIGHT	40	5	2				
PEASE BOULEVARD	EB EGRESS	LEFT	C	6	1				
PEASE BOULEVARD	EB EGRESS	RIGHT	C	6	2				
PEASE BOULEVARD	WB EGRESS	LEFT	C	7	1				
PEASE BOULEVARD	WB EGRESS	RIGHT	C	7	2				
INTERNATIONAL DRIVE	SB EGRESS	LEFT	C	8	1				
INTERNATIONAL DRIVE	SB EGRESS	RIGHT	C	8	2				
DRIVE	NB EGRESS	LEFT	C	9	1				
DRIVE	NB EGRESS	RIGHT	C	9	2				
						RECORD FIELD MEASUREMENTS HERE			

C - COUNTING LOOP

PRE-EMPTION PHASING & PRIORITY

RECEIVER & PRIORITY	PREEMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
R1	1	1 5	1 + 5
R2	2	6 2	2 + 6
R3	3	4 8	8

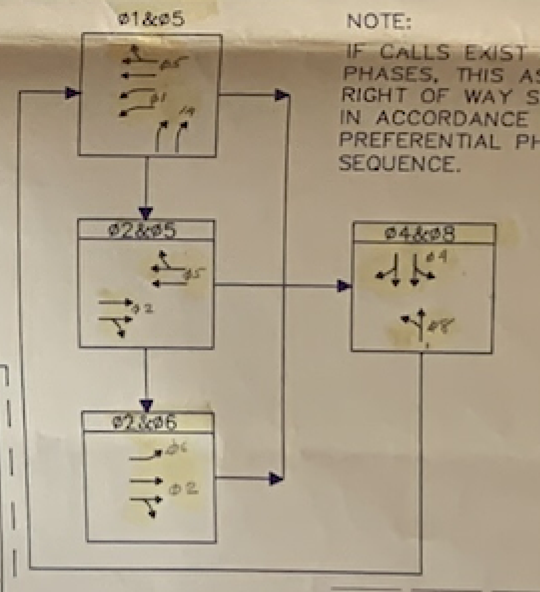
* if you Pre-empt ø8 ø4 will also be called

EMERGENCY VEHICLE PRE-EMPTION OPERATION

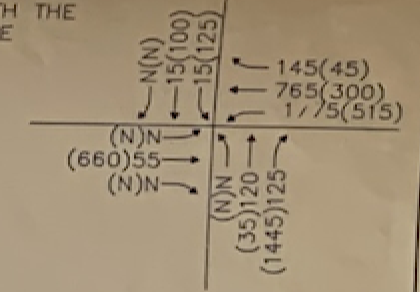
1. PRE-EMPTION OPERATION UTILIZES AVAILABLE PHASES IN 8 PHASE TIMER THROUGH THE MSD PRE-EMPT INPUTS TO EFFECT APPROPRIATE SIGNAL DISPLAYS FOR SINGLE APPROACH MOVEMENTS AS SHOWN IN THE PRE-EMPTION PHASING AND PRIORITY CHART.
2. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
3. PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS 1, 2, OR 3 ASSIGNED DESCENDING PRIORITIES AS FOLLOWS: (1 HIGHEST AND 3 LOWEST)
4. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR # 1 (OR #2, #3) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2, #3) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 1 SECOND: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE-EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE-EMPTION PHASES #3 SHALL BE SIMILARLY SERVED.
5. MINIMUM GREEN & NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
6. EMERGENCY VEHICLE PRE-EMPTION SHALL OVERRIDE COORDINATION.

NO COORDINATION

PREFERENTIAL PHASE SEQUENCE

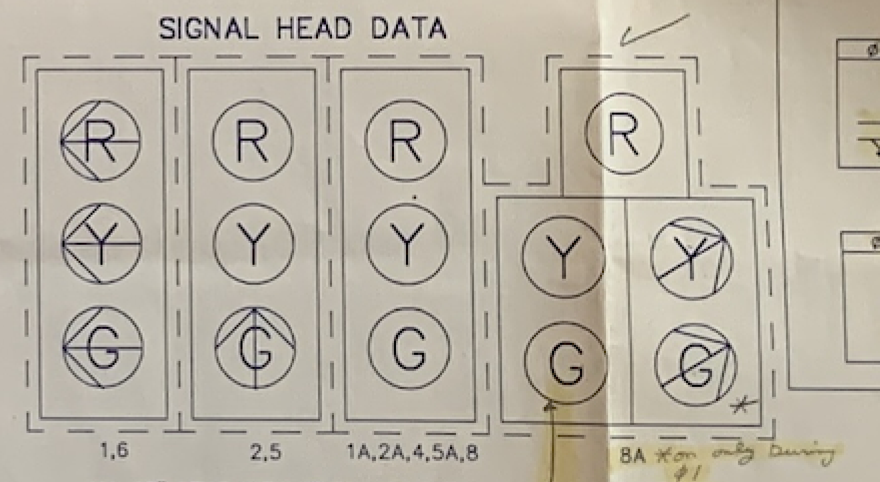


NOTE:
IF CALLS EXIST ON ALL PHASES, THIS ASSIGNMENT RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.



DESIGN YEAR TRAFFIC VOLUMES AM(PM)

SIGNAL HEAD DATA



* on only During ø1

on only During ø8

ALL 12" LENS WITH 5" BACKPLATES

SIGNAL PHASING

NO COORD

	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
			NOT USED				NOT USED	
INITIAL INTERVAL	10	6	–	6	10	6	–	6
VEHICLE EXTENSION	3	3	–	3	3	2	–	3
MAXIMUM 1	50	15	–	10	20	10	–	10
MAXIMUM 2 •	50	30	–	20	30	15	–	20
YELLOW	4	4	–	4	4	3	–	4
ALL RED	2	2	–	2	2	2	–	2
FIRE PRE-EMPT	SEE EMERGENCY VEHICLE PRE-EMPTION OPERATION							
FLASH	F←R- ,FR	FY	–	FR	FY	F←R-	–	FR
RECALL	OFF	ON	–	OFF	ON	OFF	–	OFF
DETECTOR	NL	NL	–	NL	NL	NL	–	NL

NL=NONLOCK

NOTES: 1.• MAXIMUM 2 = 7-9AM & 4-6PM
?→2. ø1 OMIT ø6
PED A = PUSH BUTTON ACTUATION CALLS ø4 MAX 2
PED B = PUSH BUTTON ACTUATION CALLS ø2 MAX 1

Rev. No.	Date	Description	Made by	Chk. by	Appd. by

Pease Development Authority
Portsmouth, New Hampshire

Pease International Tradeport
Portsmouth, New Hampshire
E.D.A. No. 01-49-03235

Pease Boulevard and International Drive Signalization Plan

Vanasse Hangen Brustlin, Inc.
Engineers • Planners • Scientists
Bedford, New Hampshire 03110
Six Bedford Farms, Kilton Road
603 644 0888 • FAX 603 644 2385

G16:11

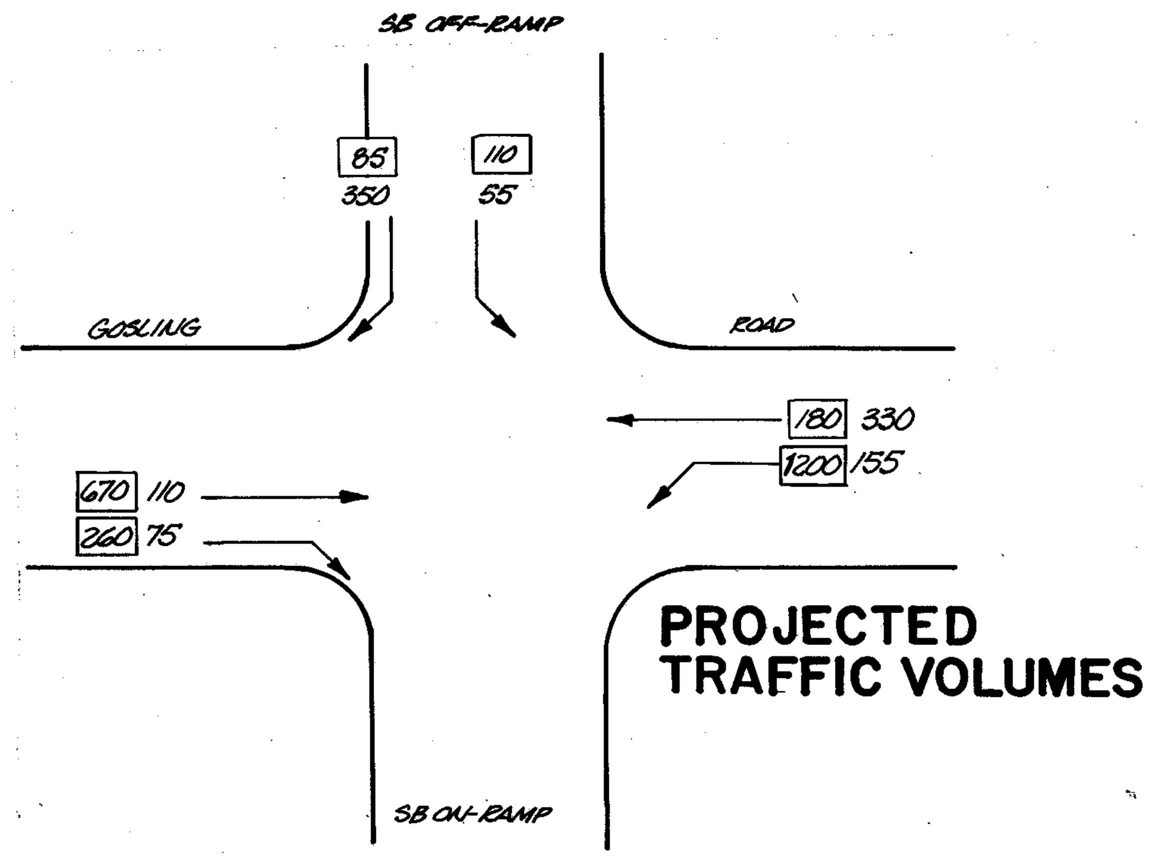
Designed by: Drawn by: Checked by:

Scale: 1" = 20'

Date: March 18, 1994

Sheet of

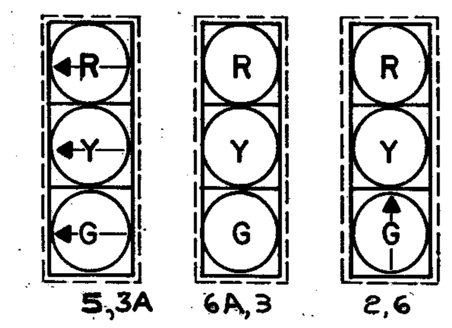
PROJECTED TRAFFIC VOLUMES



XXX - 2008 A.M. PEAK HOUR TRAFFIC
[XXX] 2008 P.M. PEAK HOUR TRAFFIC

SIGNAL HEADS

12" LENSES
5" (NOMINAL) BACKPLATES



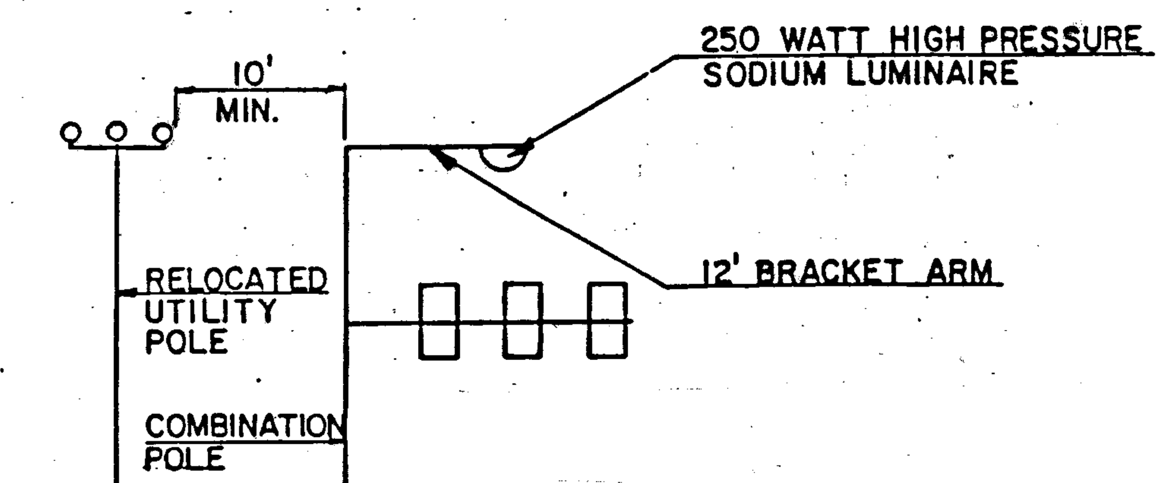
(C) = NO TURN ON RED ARROW — TO BE PLACED ADJACENT TO LEFT TURN SIGNALS 3A, 1A, 5

DETECTOR			AMPLIFIER	
STREET	DIRECTION	LANE	NO.	CHANNEL
GOSLING RD.	Ø3 SO.BD.	LEFT TURN	1	1
GOSLING RD.	Ø1 W.BD.	THRU	2	1
GOSLING RD.	Ø1 E.BD.	THRU (2)	3	1
S-B OFF-RAMP	Ø2 SO.BD.	LEFT TURN	4	1

INDUCT µH	RESIST. OF LOOP	RESIST. LOOP/GND MEG.	RESIST. SHIELD/GND MEG.

RECORD FIELD MEASUREMENTS HERE

SCHEMATIC COMBINATION POLES

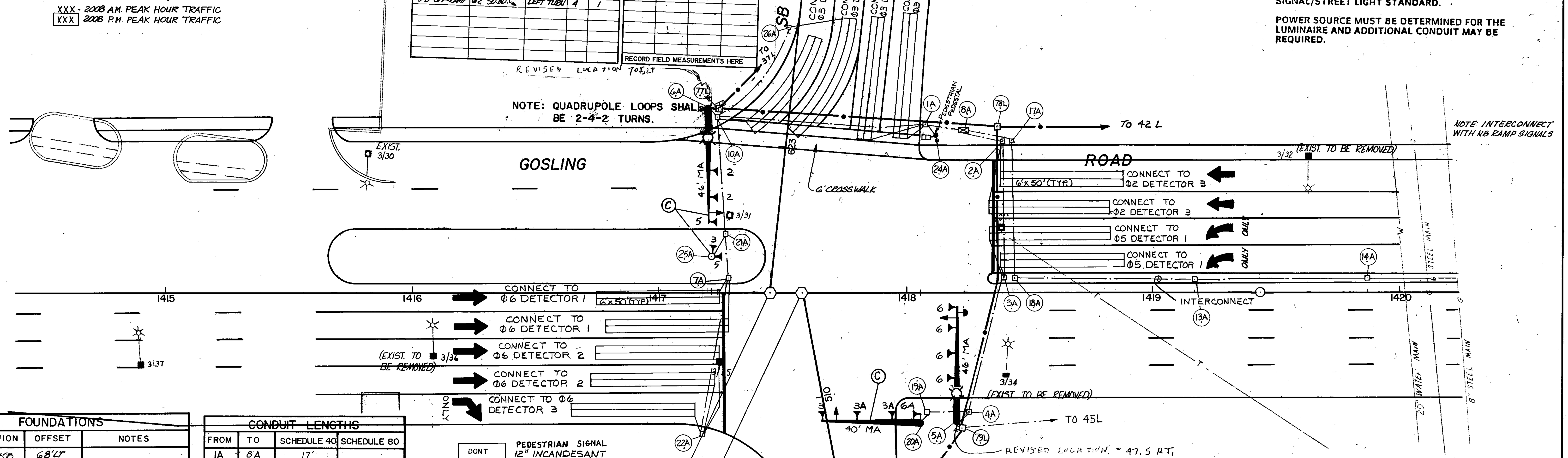


INSTALL 250-WATT HIGH PRESSURE SODIUM LUMINAIRE (G.E. M-400A TYPE II OR APPROVED EQUAL) ON COMBINATION TRAFFIC SIGNAL/STREET LIGHT STANDARD WITH 40-FOOT MOUNTING HEIGHT AND 12-FOOT BRACKET ARM.

RELOCATED AERIAL LINES MUST BE PLACED AT A MINIMUM OF 10 FEET FROM COMBINATION TRAFFIC SIGNAL/STREET LIGHT STANDARD.

POWER SOURCE MUST BE DETERMINED FOR THE LUMINAIRE AND ADDITIONAL CONDUIT MAY BE REQUIRED.

NOTE: QUADRUPOLE LOOPS SHALL BE 2-4-2 TURNS.



FOUNDATIONS				
FOUNDATION LOC.	FOUNDATION TYPE	STATION	OFFSET	NOTES
1A	PB	1418+08	68' LT	
2A	PB	1418+39	62' LT	
3A	PB	1418+39	6' LT	
4A	PB	1418+25	48' RT	
5A	MA	1418+20	56' RT	SIGNAL POLE WITH 46' MAST ARM
6A	SP	1417+20	75' LT	SIGNAL POLE W/46' MAST ARM, PEDESTRIAN SIGNAL & BUTTON
7A	PB	1417+28	6' LT	
8A	CC	1418+24	66' LT	AUXILIARY CABINET
24A	SP	1418+12	64' LT	8' SIGNAL PEDESTAL, WITH PEDESTRIAN SIGNAL & BUTTON
10A	PB	1417+24	72' LT	
22A	PB	1417+18	57' RT.	
13A	PB	1419+17	5' LT.	
14A	PB	1419+87	5' LT.	
21A	PB	1417+27	24' LT.	
17A	PB	1418+43	62' LT.	
18A		1418+43	6' LT.	
20A	SP	1418+05	53' RT.	SIGNAL POLE W/40' M.A.
26A	PB	622+52	4' RT.	

CONDUIT LENGTHS			
FROM	TO	SCHEDULE 40	SCHEDULE 80
1A	8A	17'	
2A	3A		55'
3A	4A		57'
4A	5A	5'	
10A	6A	5'	
10A	21A		48'
8A	2A	16'	
1A	24A	5'	
1A	10A		85'
17A	8A	20'	
17A	18A		56'
21A	7A	18'	
18A	13A	73'	
13A	14A	70'	
4A	19A	17'	
19A	20A	5'	
7A	22A		64'
10A	26A	48'	

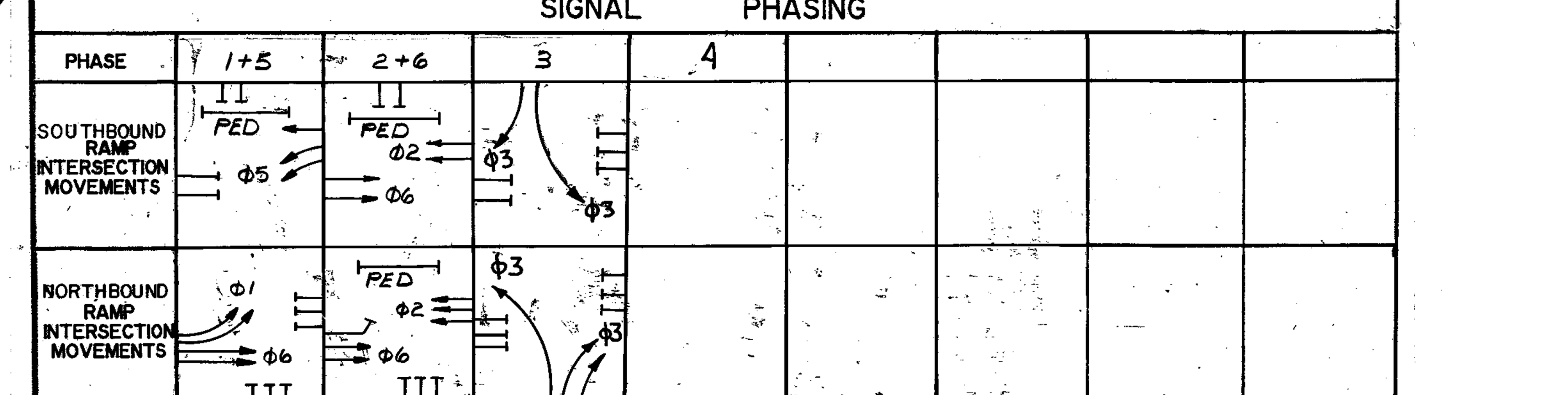
DONT / WALK — PEDESTRIAN SIGNAL 12" INCANDESANT

P.O.T. 623+59.43 S.B. OFF RAMP CONST. LINE =
P.O.T. 1417+45.26 GOS. RD. CONST. LINE

P.O.T. 509+57.35 S.B. ON RAMP CONST. LINE =
P.O.T. 1417+58.33 GOS. RD. CONST. LINE

PUSH BUTTON FOR WALK SIGNAL
R10-4
9" x 12"

SIGNAL PHASING



SIGNAL TIMING																
	Φ1			Φ2			Φ3			Φ5			Φ6			FLASH
EB GOSLING RD LEFT TURN	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R
WB GOSLING RD THRU'S	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	Y
SB OFF RAMP NB OFF RAMP	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R
WB GOSLING RD LEFT TURN	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R
EB GOSLING RD THRU'S	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	Y
MIN GREEN	15			8			8			5			8			
EXTENTION	4			5			5			4			5			
YELLOW		4			4			4			4			4		
RED			2			2			2			2			2	
MAX. I	25			35			25			25			35			
WALK	7			7												OUT
DON'T WALK	18			18												OUT

KEY

- LIGHTING CONDUIT
- SIGNAL CONDUIT
- BOX OUT
- CONTROLLER CABINET
- METER PEDESTAL
- PEDESTRIAN SIGNAL
- 2 DUCT CONDUIT

ITEM NO. 616,101

SIGNAL PLANS

"AS-BUILT PLANS"

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
	10102	107	277

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS	
BOOK	PAGE
BOOK	PAGE
BOOK	PAGE

DETAIL		DATE
EXISTING DETAIL		DATE
PROPOSED DESIGN	P. Konjevka	DATE 10-6-89
SHEET CHECKED		DATE 10-6-89
AS BUILT DETAILS		DATE

CONDUIT LENGTHS

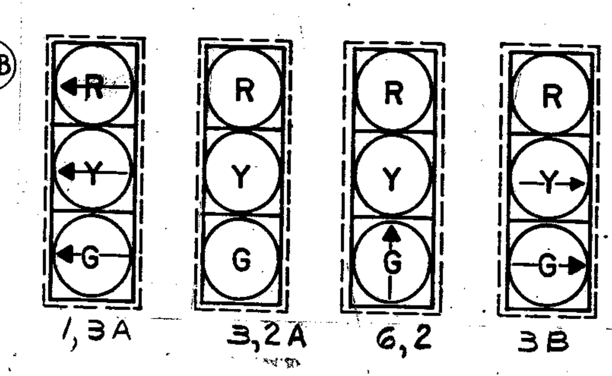
FROM	TO	SCHEDULE 40	SCHEDULE 80
7B	9B	5'	
7B	20B	53'	
1B	22B	9'	
22B	16B	51'	
1B	15B	10'	
1B	12B	38'	
2B	4B		50'
4B	5B		53'
5B	6B	40'	
12B	14B		61'
14B	13B	5'	
12B	3B	8'	
14B	18B	33'	
18B	8B		44
8B	21B	25'	
8B	19B	16'	
19B	10B	54'	
10B	11B	5'	
7B	19B		58'

FOUNDATIONS

FOUNDATION LOC.	FOUNDATION TYPE	STATION	OFFSET	NOTES
1B	CONT.	1422+08	68' LT.	RELOCATED CABINET
2B	PB	1422+07	56' LT	
3B	MA	1422+41	63' LT	SIGNAL POLE W/44' MAST ARM AND PEDESTRIAN SIGNAL & BUTTON
4B	PB	1422+04	6' LT	
5B	PB	1422+10	43' RT	
6B	PB	1422+50	46' RT	
7B	PB	1423+42	57' RT	
8B	PB	1423+18	5' LT	
9B	MA	1423+47	54' RT	SIGNAL POLE W/46' MAST ARM
10B	PB	1423+64	3' LT	
11B	SP	1423+68	2' LT	8' SIGNAL POLE
12B	PB	1422+45	68' LT	
13B	SP	1423+04	67' LT.	8' SIGNAL POLE W/ PEDESTRIAN SIGNAL & BUTTON
14B	PB	1423+06	72' LT.	
16B	PB	1421+99	6' LT.	
17B	PB	1421+30	6' LT.	
15B	MP	1422+16	68' LT.	METER PEDESTAL

SIGNAL HEADS

12" LENSES
5" (NOMINAL) BACKPLATES



Ⓒ = NO TURN ON RED ARROW — TO BE ADJACENT TO LEFT TURN SIGNAL 3A, 1

DETECTOR			AMPLIFIER		INDUCT μH	RESIST. OF LOOP Ω	RESIST. LOOP/GND MEG. Ω	RESIST. SHIELD/GND MEG. Ω
STREET	DIRECTION	LANE	NO.	CHANNEL				
GOSLING RD.	Φ6 W. BOUND	THRU (3)	1	1				
GOSLING RD.	Φ6 E. BOUND	THRU (2)	2	1				
GOSLING RD.	Φ5 E. BND.	LEFT TURN	3	1				
NB OFF-RAMP	Φ7 N. BND.	LEFT TURN	4	1				
NB OFF-RAMP	Φ4 N. BND.	RT. TURN (2)	5	1				

RECORD FIELD MEASUREMENTS HERE

NOTE: QUADRUPOLE LOOPS SHALL BE 2-4-2 TURNS.

DON'T WALK — PEDESTRIAN SIGNAL 12" INCANDESANT

SIGNAL PHASING

PHASE	1+5	2+6	3					
SOUTHBOUND RAMP INTERSECTION MOVEMENTS	PED, Φ5	PED, Φ2, Φ6	Φ3, Φ3					
NORTHBOUND RAMP INTERSECTION MOVEMENTS	Φ1, Φ6	PED, Φ2, Φ6	Φ3, Φ3					

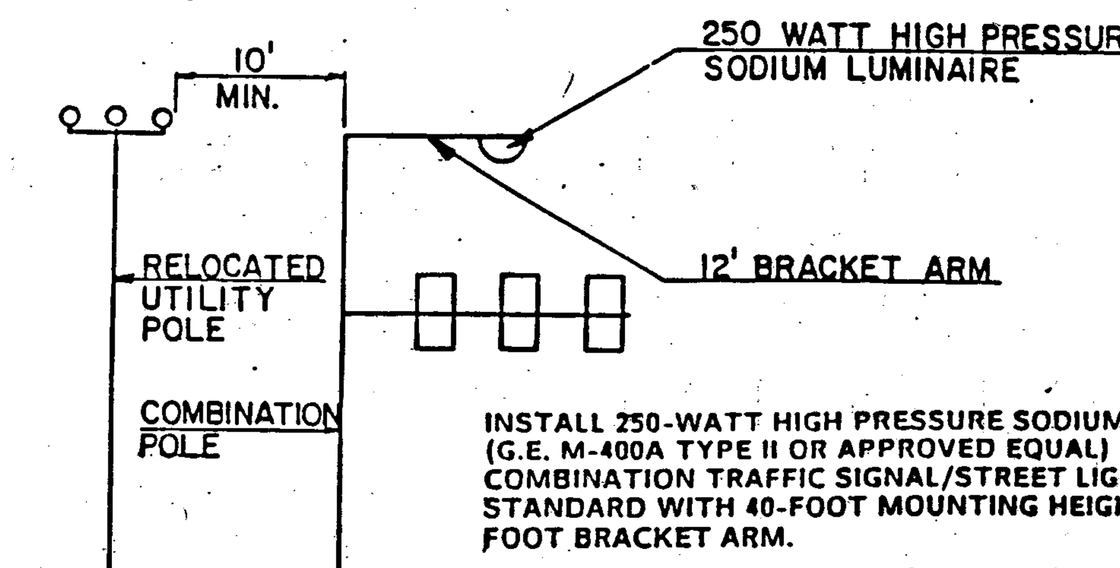
CONDUIT LENGTHS

FROM	TO	SCHEDULE 40	SCHEDULE 80
16B	17B	69'	
17B	14A	143'	

FOUNDATIONS

FOUNDATION LOC.	FOUNDATION TYPE	STATION	OFFSET	NOTES
18B	PB	1423+28	48' LT.	
19B	PB	1423+11	8' RT.	
20B	PB	819+06	4' RT.	
21B	SP	1422+94	1' RT.	SIGNAL POLE
22B	PB	1422+04	56' LT.	

SCHEMATIC COMBINATION POLES



INSTALL 250-WATT HIGH PRESSURE SODIUM LUMINAIRE (G.E. M-400A TYPE II OR APPROVED EQUAL) ON COMBINATION TRAFFIC SIGNAL/STREET LIGHT STANDARD WITH 40-FOOT MOUNTING HEIGHT AND 12-FOOT BRACKET ARM.

RELOCATED AERIAL LINES MUST BE PLACED AT A MINIMUM OF 10 FEET FROM COMBINATION TRAFFIC SIGNAL/STREET LIGHT STANDARD.

POWER SOURCE MUST BE DETERMINED FOR THE LUMINAIRE AND ADDITIONAL CONDUIT MAY BE REQUIRED.

KEY

- LIGHTING CONDUIT
- SIGNAL CONDUIT
- BOX OUT
- CONTROLLER CABINET
- METER PEDESTAL
- PEDESTRIAN SIGNAL
- 2 DUCT CONDUIT

ITEM NO. 616.102

SIGNAL PLANS

"AS-BUILT PLANS"

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
	10102	108	277

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	DESCRIPTION

NOTEBOOKS: BOOK PAGE / BOOK PAGE / BOOK PAGE

EXISTING DETAIL		DATE
PROPOSED DESIGN	P. Krajecski	DATE 10-6-89
SHEET CHECKED	[illegible]	DATE 10-6-89
AS BUILT DETAILS		DATE

8 PHASE NEMA DUAL RING QUAD LEFT CONTROLLER

SIGNAL PHASING & TIMING

TIMING IN SECONDS	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
	NOT USED		NOT USED	NOT USED				NOT USED
INITIAL INTERVAL	–	8	–	–	5	8	5	–
VEHICLE EXTENSION	–	4	–	–	4	4	4	–
MAXIMUM 1	–	30	–	–	20	30	25	–
MAXIMUM 2	–	30	–	–	20	30	25	–
YELLOW	–	4	–	–	4	4	4	–
ALL RED	–	2	–	–	2	2	2	–
PEDESTRIAN WALK	–	–	–	–	–	–	–	–
PEDESTRIAN CLEAR	–	–	–	–	–	–	–	–
FLASH	–	FY	–	–	FRA	FY	FR	–
RECALL	–	SOFT	–	–	OFF	SOFT	OFF	–
DETECTOR	–	NL	–	–	NL	NL	NL	–
PRE-EMPT PRIORITY	–	2	–	–	2	1	3	–

SYSTEM TO MAXIMUM 2 UNDER COORDINATION

FIRE PREEMPTION

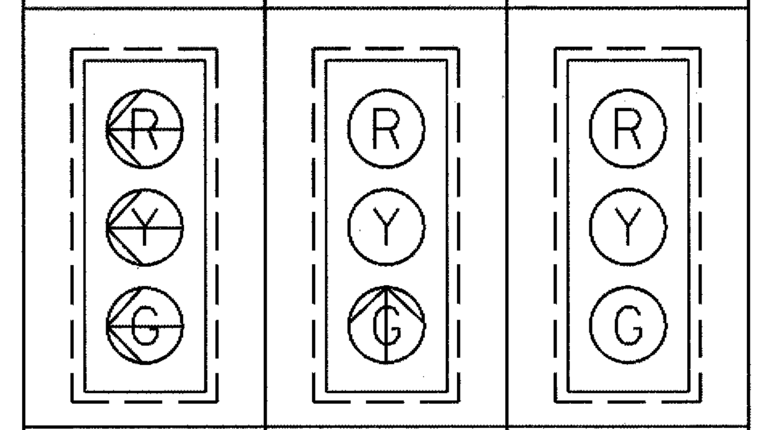
PREEMPT 1	CALLS ø6
PREEMPT 2	CALLS ø2 & ø5
PREEMPT 3	CALLS ø7

FIRE PREEMPTION NOTES:

1. PROGRAM PREEMPTION PRIORITY TO MATCH PHASING CHANGE.
2. PREEMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH OPTICAL RECEIVERS ASSIGNED WITH DESCENDING PRIORITIES AS FOLLOWS: #1 HIGHEST TO #3 LOWEST.
3. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE TIMES SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PREEMPTION DEMAND.

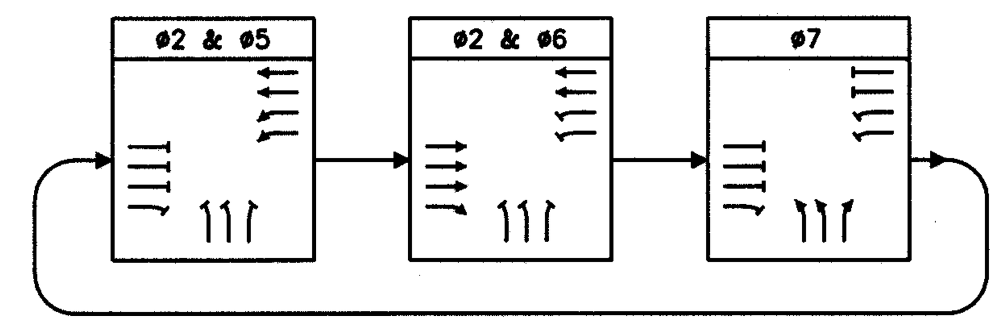
SIGNAL HEAD DATA

EXISTING		
5	2, 6, 7	6A
12" LENS	12" LENS	12" LENS
WITH 5" LOUVERED BACKPLATES		



NOTE: ALL SIGNAL HEADS ARE EQUIPPED WITH L.E.D. MODULES.

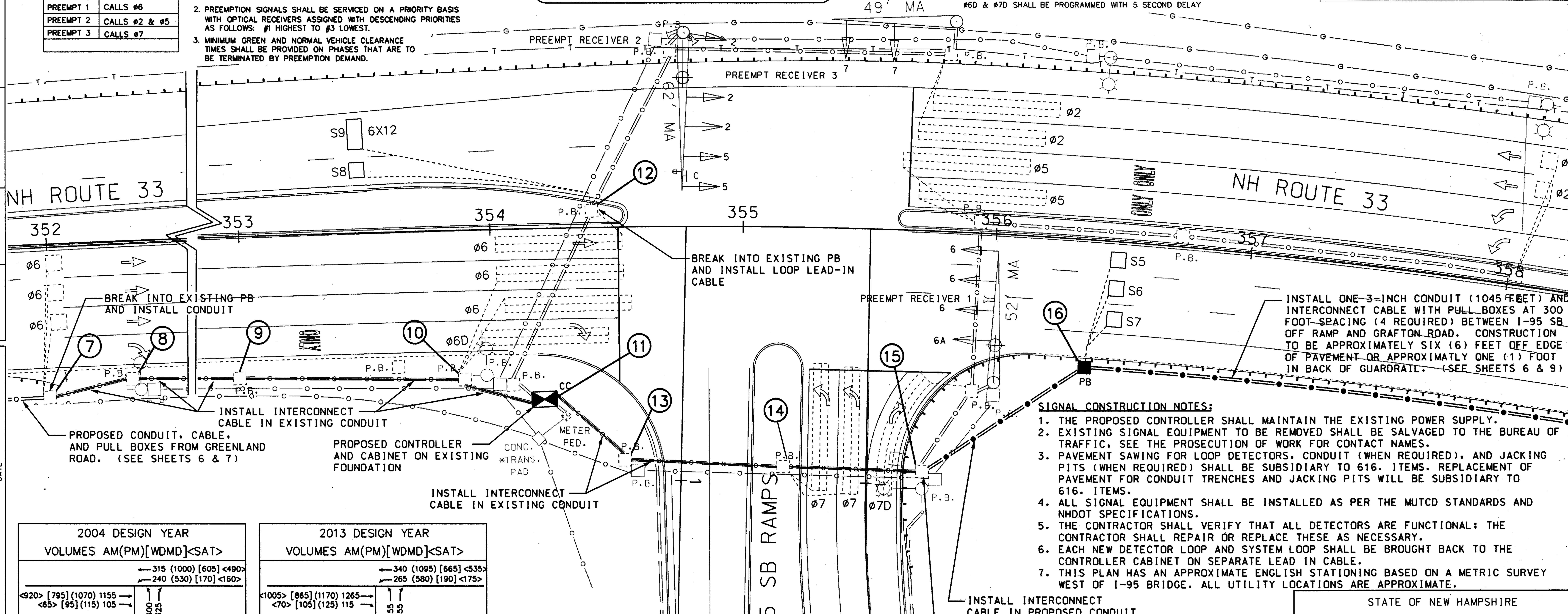
N.E.M.A.
PHASE SEQUENCE



DETECTOR SCHEDULE

DETECTOR				AMPLIFIER		INDUCT UH	RESISTANCE OF LOOPS	RESIST. LOOP GRD. MEG.	RESIST. SHIELD GRD. MEG.
STREET	DIRECTION	LANE	ø	NO.	CHANNEL				
NH ROUTE 33	EASTBOUND	THRU (MEDIAN)	6	1	1				
NH ROUTE 33	EASTBOUND	THRU (CEN-LEFT)	6	1	2				
NH ROUTE 33	EASTBOUND	THRU (CEN-RIGHT)	6	2	1				
NH ROUTE 33	EASTBOUND	RIGHT	6D	2	2				
NH ROUTE 33	EASTBOUND	THRU-BACK (MEDIAN)	6	3	1				
NH ROUTE 33	EASTBOUND	THRU-BACK (CEN-LEFT)	6	3	2				
NH ROUTE 33	EASTBOUND	THRU-BACK (CEN-RIGHT)	6	4	1				
NH ROUTE 33	EASTBOUND	THRU-DEPART (MEDIAN)	S5	10	1				
NH ROUTE 33	EASTBOUND	THRU-DEPART (CENTER)	S6	10	2				
NH ROUTE 33	EASTBOUND	THRU-DEPART (RIGHT)	S7	11	1				
NH ROUTE 33	WESTBOUND	LEFT (MEDIAN)	5	5	1				
NH ROUTE 33	WESTBOUND	LEFT (CEN-LEFT)	5	5	2				
NH ROUTE 33	WESTBOUND	THRU (CEN-RIGHT)	2	6	1				
NH ROUTE 33	WESTBOUND	THRU (RIGHT)	2	6	2				
NH ROUTE 33	WESTBOUND	THRU-BACK (CEN-RIGHT)	2	7	1				
NH ROUTE 33	WESTBOUND	THRU-BACK (CEN-LEFT)	2	7	2				
NH ROUTE 33	WESTBOUND	THRU-DEPART (LEFT)	S8	12	1				
NH ROUTE 33	WESTBOUND	THRU-DEPART (RIGHT)	S9	12	2				
I-95 SB RAMP	NORTHBOUND	LEFT (MEDIAN)	7	8	1				
I-95 SB RAMP	NORTHBOUND	LEFT (CENTER)	7	8	2				
I-95 SB RAMP	NORTHBOUND	RIGHT	7D	9	1				
						RECORD FIELD MEASUREMENTS HERE			

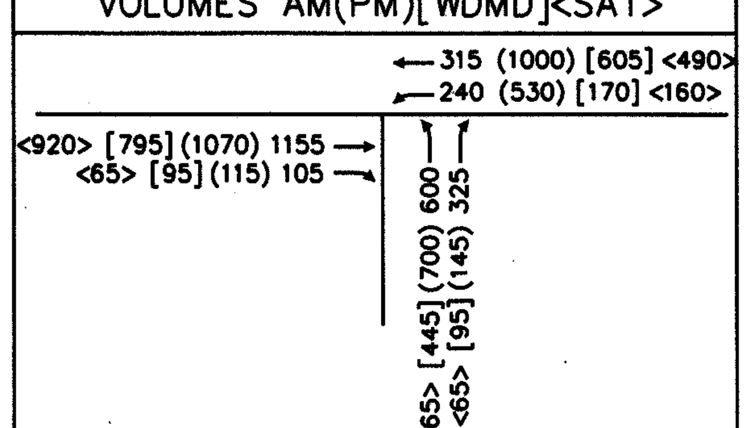
S = SYSTEM LOOP
ø6D & ø7D SHALL BE PROGRAMMED WITH 5 SECOND DELAY



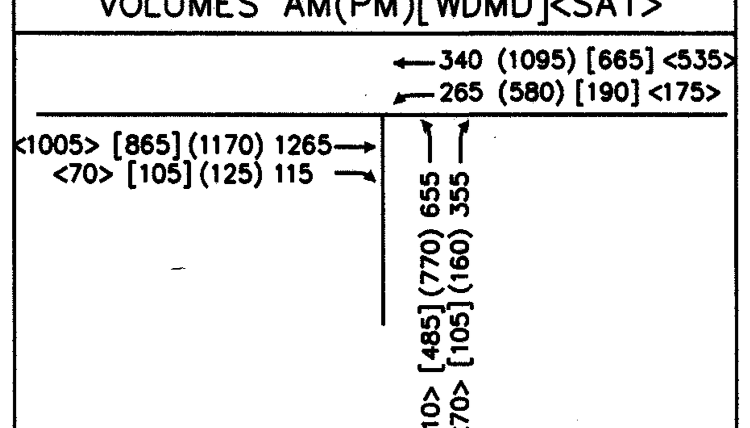
SIGNAL CONSTRUCTION NOTES:

1. THE PROPOSED CONTROLLER SHALL MAINTAIN THE EXISTING POWER SUPPLY.
2. EXISTING SIGNAL EQUIPMENT TO BE REMOVED SHALL BE SALVAGED TO THE BUREAU OF TRAFFIC. SEE THE PROSECUTION OF WORK FOR CONTACT NAMES.
3. PAVEMENT SAWING FOR LOOP DETECTORS, CONDUIT (WHEN REQUIRED), AND JACKING PITS (WHEN REQUIRED) SHALL BE SUBSIDIARY TO 616. ITEMS. REPLACEMENT OF PAVEMENT FOR CONDUIT TRENCHES AND JACKING PITS WILL BE SUBSIDIARY TO 616. ITEMS.
4. ALL SIGNAL EQUIPMENT SHALL BE INSTALLED AS PER THE MUTCD STANDARDS AND NHDOT SPECIFICATIONS.
5. THE CONTRACTOR SHALL VERIFY THAT ALL DETECTORS ARE FUNCTIONAL; THE CONTRACTOR SHALL REPAIR OR REPLACE THESE AS NECESSARY.
6. EACH NEW DETECTOR LOOP AND SYSTEM LOOP SHALL BE BROUGHT BACK TO THE CONTROLLER CABINET ON SEPARATE LEAD IN CABLE.
7. THIS PLAN HAS AN APPROXIMATE ENGLISH STATIONING BASED ON A METRIC SURVEY WEST OF I-95 BRIDGE. ALL UTILITY LOCATIONS ARE APPROXIMATE.

2004 DESIGN YEAR
VOLUMES AM(PM)[WDMD]<SAT>



2013 DESIGN YEAR
VOLUMES AM(PM)[WDMD]<SAT>



20 0 20 40
SCALE IN FEET

ALTERATIONS TO TRAFFIC SIGNALS
ITEM 616.192

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF TRAFFIC

SIGNALIZATION PLAN
NH ROUTE 33/I-95 SB OFF RAMP

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
A-X000(179)	13879	8	14

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

SDR PROCESSED	CMB	DATE 7/7/03
NEW DESIGN	DJD	DATE 8/11/03
SHEET CHECKED	CMB	DATE 8/21/03
AS BUILT DETAILS		DATE

8 PHASE NEMA DUAL RING QUAD LEFT CONTROLLER

SIGNAL PHASING & TIMING								
	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
TIMING IN SECONDS	→	← ← ←	↓ ↓	NOT USED	NOT USED	→ →	NOT USED	NOT USED
INITIAL INTERVAL	5	8	5	–	–	8	–	–
VEHICLE EXTENSION	4	4	4	–	–	4	–	–
MAXIMUM 1	20	35	20	–	–	35	–	–
MAXIMUM 2	20	35	20	–	–	35	–	–
YELLOW	4	4	4	–	–	4	–	–
ALL RED	2	2	2	–	–	2	–	–
PEDESTRIAN WALK	–	–	–	–	–	–	–	–
PEDESTRIAN CLEAR	–	–	–	–	–	–	–	–
FLASH	FRA	FY	FR	–	–	FY	–	–
RECALL	OFF	SOFT	OFF	–	–	SOFT	–	–
DETECTOR	NL	NL	NL	–	–	NL	–	–
PRE-EMPT PRIORITY	1	2	3	–	–	1	–	–

SYSTEM TO MAXIMUM 2 UNDER COORDINATION

N.E.M.A. PHASE SEQUENCE

ø1 & ø6 → ø2 & ø6 → ø3

FIRE PREEMPTION	
PREEMPT 1	CALLS ø1 & ø6
PREEMPT 2	CALLS ø2
PREEMPT 3	CALLS ø3

FIRE PREEMPTION NOTES:

1. PROGRAM PREEMPTION PRIORITY TO MATCH PHASING CHANGE.
2. PREEMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH OPTICAL RECEIVERS ASSIGNED WITH DESCENDING PRIORITIES AS FOLLOWS: #1 HIGHEST TO #3 LOWEST.
3. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE TIMES SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PREEMPTION DEMAND.

DETECTOR SCHEDULE

DETECTOR				AMPLIFIER		INDUCT UH	RESISTANCE OF LOOPS	RESIST. LOOP GRD. MEG.	RESIST. SHIELD GRD. MEG.
STREET	DIRECTION	LANE	ø	NO.	CHANNEL				
NH ROUTE 33	EASTBOUND	LEFT	1	1	1				
NH ROUTE 33	EASTBOUND	THRU (CENTER)	6	2	1				
NH ROUTE 33	EASTBOUND	THRU (RIGHT)	6	2	2				
NH ROUTE 33	EASTBOUND	THRU-BACK (CENTER)	6	3	1				
NH ROUTE 33	EASTBOUND	THRU-BACK (RIGHT)	6	3	2				
NH ROUTE 33	EASTBOUND	THRU-DEPART (LEFT)	S10	8	1				
NH ROUTE 33	EASTBOUND	THRU-DEPART (RIGHT)	S11	8	2				
NH ROUTE 33	WESTBOUND	THRU (MEDIAN)	2	4	1				
NH ROUTE 33	WESTBOUND	THRU (CENTER)	2	4	2				
NH ROUTE 33	WESTBOUND	RIGHT	2	5	1				
NH ROUTE 33	WESTBOUND	THRU-BACK (MEDIAN)	2	6	1				
NH ROUTE 33	WESTBOUND	THRU-BACK (CENTER)	2	6	2				
NH ROUTE 33	WESTBOUND	THRU-DEPART (MEDIAN)	S12	9	1				
NH ROUTE 33	WESTBOUND	THRU-DEPART (RIGHT)	S13	9	2				
GRAFTON ROAD	SOUTHBOUND	LEFT	3	7	1				
GRAFTON ROAD	SOUTHBOUND	RIGHT	3D	7	2				

S = SYSTEM LOOP

ø3D SHALL BE PROGRAMMED WITH A 5 SECOND DELAY

RECORD FIELD MEASUREMENTS HERE

2004 DESIGN YEAR VOLUMES AM(PM)[WDMD]<SAT>	2013 DESIGN YEAR VOLUMES AM(PM)[WDMD]<SAT>
60 (670) [240] <165> ↓	65 (735) [265] <180> ↓
55 (425) [180] <75> ↓	60 (465) [200] <85> ↓
← 305 (130) [130] <45>	← 330 (145) [145] <50>
← 495 (865) [530] <480>	← 540 (945) [580] <525>
<165> [170] (185) 345 →	<180> [190] (205) 375 →
<815> [720] (1025) 1135 →	<890> [790] (1120) 1245 →

SIGNAL HEAD DATA

EXISTING			
1	2, 6	3	2A
R / Y← / G←	R / Y / G←	R / Y / G	R / Y / G←
12" LENS	12" LENS	12" LENS	12" LENS
WITH 5" LOUVERED BACKPLATES			

NOTE: ALL SIGNAL HEADS TO BE EQUIPPED WITH NEW L.E.D. MODULES.

SIGNAL CONSTRUCTION NOTES:

1. THE PROPOSED CONTROLLER SHALL MAINTAIN THE EXISTING POWER SUPPLY.
2. EXISTING SIGNAL EQUIPMENT TO BE REMOVED SHALL BE SALVAGED TO THE BUREAU OF TRAFFIC. SEE THE PROSECUTION OF WORK FOR CONTACT NAMES.
3. PAVEMENT SAWING FOR LOOP DETECTORS, CONDUIT (WHEN REQUIRED), AND JACKING PITS (WHEN REQUIRED) SHALL BE SUBSIDIARY TO 616. ITEMS. REPLACEMENT OF PAVEMENT FOR CONDUIT TRENCHES AND JACKING PITS WILL BE SUBSIDIARY TO 616. ITEMS.
4. ALL SIGNAL EQUIPMENT SHALL BE INSTALLED AS PER THE MUTCD STANDARDS AND NHDOT SPECIFICATIONS.
5. THE CONTRACTOR SHALL VERIFY THAT ALL DETECTORS ARE FUNCTIONAL; THE CONTRACTOR SHALL REPAIR OR REPLACE THESE AS NECESSARY.
6. EACH NEW DETECTOR LOOP AND SYSTEM LOOP SHALL BE BROUGHT BACK TO THE CONTROLLER CABINET ON SEPARATE LEAD IN CABLE.
7. THIS PLAN HAS AN APPROXIMATE ENGLISH STATIONING BASED ON A METRIC SURVEY WEST OF I-95 BRIDGE. ALL UTILITY LOCATIONS ARE APPROXIMATE.

20 0 20 40
SCALE IN FEET

ALTERATIONS TO TRAFFIC SIGNALS
ITEM 616.193

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF TRAFFIC

SIGNALIZATION PLAN
NH ROUTE 33/GRAFTON ROAD (PEASE S. ENTRANCE)

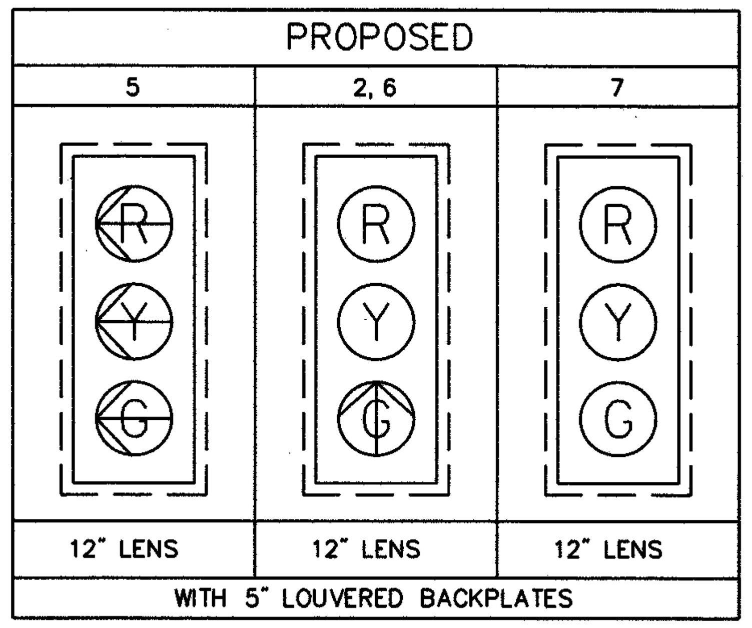
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
A-X000(179)	13879	9	14

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

SDR PROCESSED	CMB	DATE 7/7/03
NEW DESIGN	DJD	DATE 8/11/03
SHEET CHECKED	CMB	DATE 8/21/03
AS BUILT DETAILS		DATE

SIGNAL HEAD DATA



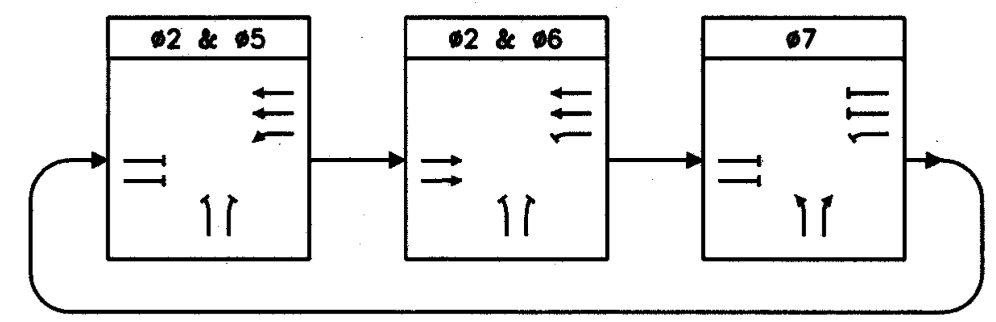
NOTE: ALL SIGNAL HEADS SHALL BE EQUIPPED WITH NEW L.E.D. MODULES.

FIRE PREEMPTION	
PREEMPT 1	CALLS ø6
PREEMPT 2	CALLS ø2 & ø5
PREEMPT 3	CALLS ø7

FIRE PREEMPTION NOTES:

1. PREEMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH OPTICAL RECEIVERS ASSIGNED WITH DESCENDING PRIORITIES AS FOLLOWS: #1 HIGHEST TO #3 LOWEST.
2. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE TIMES SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PREEMPTION DEMAND.

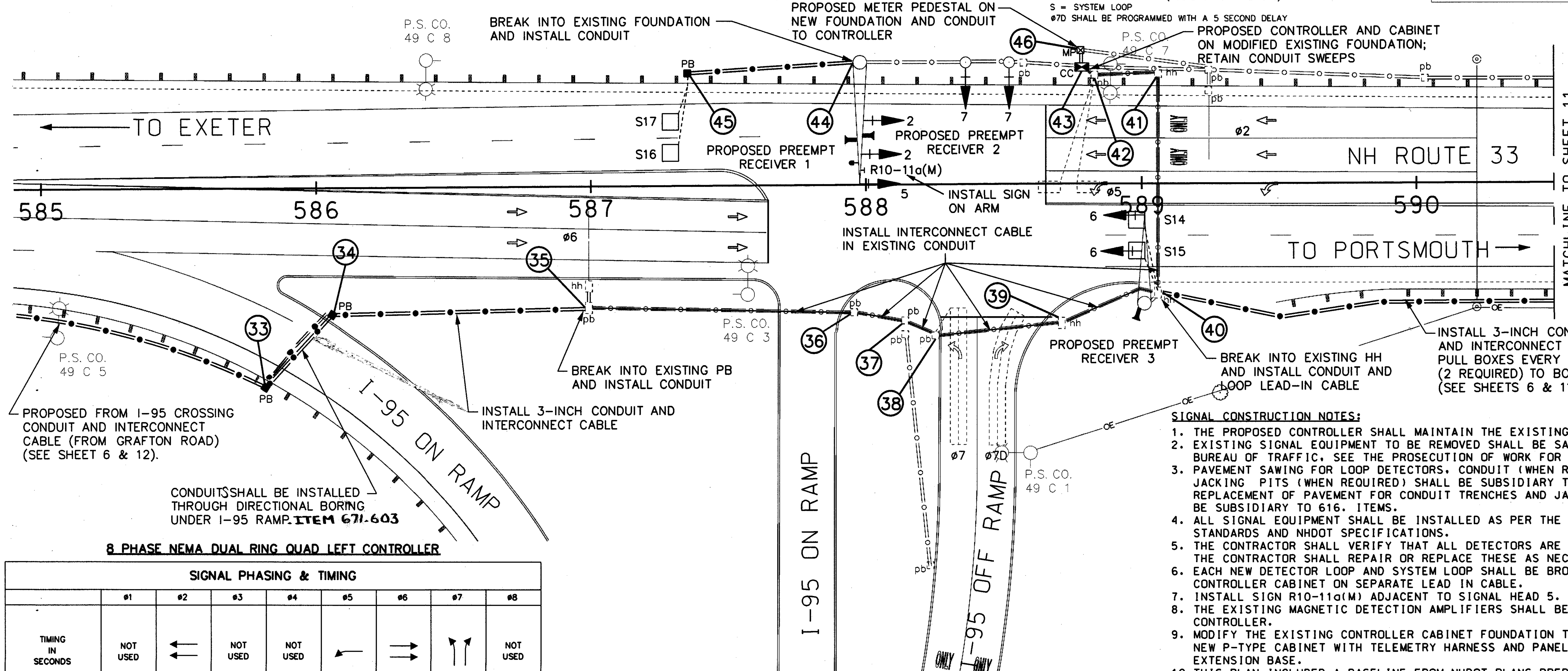
N.E.M.A. PHASE SEQUENCE



DETECTOR SCHEDULE

DETECTOR				AMPLIFIER		INDUCT UH	RESISTANCE OF LOOPS	RESIST. LOOP GRD. MEG.	RESIST. SHIELD GRD. MEG.
STREET	DIRECTION	LANE	ø	NO.	CHANNEL				
NH ROUTE 33	EASTBOUND	THRU (LEFT)	6•	•	•				
NH ROUTE 33	EASTBOUND	THRU (RIGHT)	6•	•	•				
NH ROUTE 33	EASTBOUND	THRU-DEPART (LEFT)	S14	3	1				
NH ROUTE 33	EASTBOUND	THRU-DEPART (RIGHT)	S15	3	2				
NH ROUTE 33	WESTBOUND	LEFT (2)	5	1	1				
NH ROUTE 33	WESTBOUND	THRU (CENTER)	2•	•	•				
NH ROUTE 33	WESTBOUND	THRU (RIGHT)	2•	•	•				
NH ROUTE 33	WESTBOUND	THRU-DEPART (LEFT)	S16	4	1				
NH ROUTE 33	WESTBOUND	THRU-DEPART (RIGHT)	S17	4	2				
I-95 OFF RAMP	NORTHBOUND	LEFT	7	2	1				
I-95 OFF RAMP	NORTHBOUND	RIGHT	7D	2	2				
						RECORD FIELD MEASUREMENTS HERE			

• = MAGNETIC DETECTOR (USE EXISTING AMPLIFIERS)
S = SYSTEM LOOP
ø7D SHALL BE PROGRAMMED WITH A 5 SECOND DELAY



SIGNAL CONSTRUCTION NOTES:

1. THE PROPOSED CONTROLLER SHALL MAINTAIN THE EXISTING POWER SUPPLY.
2. EXISTING SIGNAL EQUIPMENT TO BE REMOVED SHALL BE SALVAGED TO THE BUREAU OF TRAFFIC. SEE THE PROSECUTION OF WORK FOR CONTACT NAMES.
3. PAVEMENT SAWING FOR LOOP DETECTORS, CONDUIT (WHEN REQUIRED), AND JACKING PITS (WHEN REQUIRED) SHALL BE SUBSIDIARY TO 616. ITEMS. REPLACEMENT OF PAVEMENT FOR CONDUIT TRENCHES AND JACKING PITS WILL BE SUBSIDIARY TO 616. ITEMS.
4. ALL SIGNAL EQUIPMENT SHALL BE INSTALLED AS PER THE MUTCD STANDARDS AND NHDOT SPECIFICATIONS.
5. THE CONTRACTOR SHALL VERIFY THAT ALL DETECTORS ARE FUNCTIONAL; THE CONTRACTOR SHALL REPAIR OR REPLACE THESE AS NECESSARY.
6. EACH NEW DETECTOR LOOP AND SYSTEM LOOP SHALL BE BROUGHT BACK TO THE CONTROLLER CABINET ON SEPARATE LEAD IN CABLE.
7. INSTALL SIGN R10-11a(M) ADJACENT TO SIGNAL HEAD 5.
8. THE EXISTING MAGNETIC DETECTION AMPLIFIERS SHALL BE REUSED IN THE NEW CONTROLLER.
9. MODIFY THE EXISTING CONTROLLER CABINET FOUNDATION TO ACCOMODATE THE NEW P-TYPE CABINET WITH TELEMETRY HARNESS AND PANEL, WITH A 12-INCH EXTENSION BASE.
10. THIS PLAN INCLUDED A BASELINE FROM NHDOT PLANS PREPARED IN 1982. THIS BASELINE EXTENDS EAST FROM THE I-95 BRIDGE. THE LOCATIONS OF UTILITES ARE APPROXIMATE.

8 PHASE NEMA DUAL RING QUAD LEFT CONTROLLER

SIGNAL PHASING & TIMING

TIMING IN SECONDS	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
	NOT USED		NOT USED	NOT USED				NOT USED
INITIAL INTERVAL	–	10	–	–	5	10	8	–
VEHICLE EXTENSION	–	4	–	–	4	4	4	–
MAXIMUM 1	–	25	–	–	40	25	50	–
MAXIMUM 2	–	40	–	–	40	40	40	–
YELLOW	–	4	–	–	4	4	4	–
ALL RED	–	2	–	–	2	2	2	–
PEDESTRIAN WALK	–	–	–	–	–	–	–	–
PEDESTRIAN CLEAR	–	–	–	–	–	–	–	–
FLASH	–	FY	–	–	FRA	FY	FR	–
RECALL	–	SOFT	–	–	OFF	SOFT	OFF	–
DETECTOR	–	LOCK	–	–	NL	LOCK	NL	–
PRE-EMPT PRIORITY	–	2	–	–	2	1	3	–

ø4 & ø8 DUAL ENTRY
SYSTEM TO MAXIMUM 2 UNDER COORDINATION

2004 DESIGN YEAR
VOLUMES AM(PM)[WDMD]<SAT>

← 550 (845) [545] <455>
← 60 (395) [130] <120>
<395> [515] (700) 695 →
<495> [385] (745) 490 →
<75> [115] (150) 255
<155> [130] (420) 435

2013 DESIGN YEAR
VOLUMES AM(PM)[WDMD]<SAT>

← 600 (920) [595] <495>
← 65 (430) [145] <135>
<430> [565] (770) 760 →
<540> [420] (815) 535 →
<85> [125] (165) 275
<170> [145] (460) 475

PROPOSED SIGN

NO TURN ON RED ARROW

24" X 30"
R10-11a(M)

20 0 20 40
SCALE IN FEET

ALTERATIONS TO TRAFFIC SIGNALS
ITEM 616.194

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF TRAFFIC

SIGNALIZATION PLAN
NH ROUTE 33/I-95 NB OFF RAMP

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
A-X000(179)	13879	10	14

REVISIONS AFTER PROPOSAL: DESCRIPTION | STATION | STATION | DATE | NUMBER

SDR PROCESSED CMB DATE 7/7/03
NEW DESIGN DJD DATE 8/11/03
SHEET CHECKED CMB DATE 8/21/03
AS BUILT DETAILS DATE

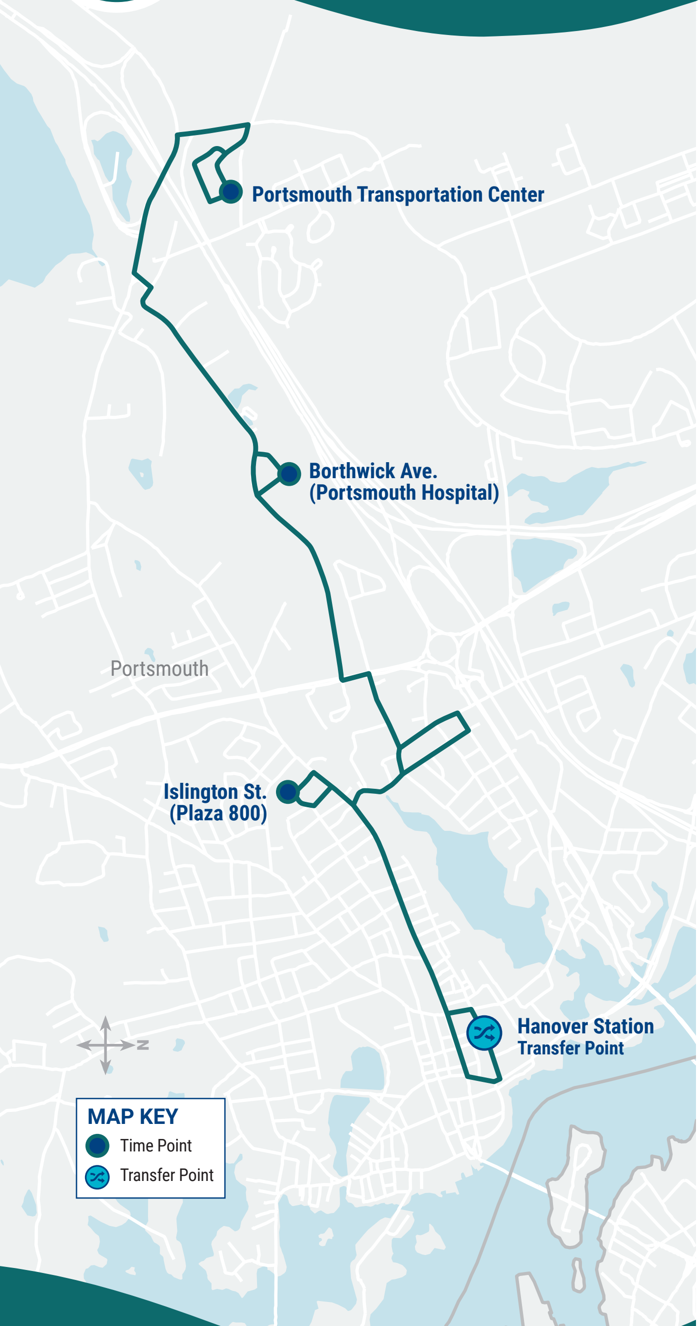
APPENDIX J

COAST Bus Schedules & Map

Route 40 Map

40

Portsmouth • Islington • Borthwick



Ride Information

COAST BUS FARES

Base Cash Fare **$1.50**

All passengers ages 5 and up are required to pay this fare each time they board a COAST bus.

Half-Fare **$ 0.75**

Passengers 65 and older, or passengers with a disability are entitled to pay half the cash fare. Proof of eligibility is required by showing a Medicare card, photo ID with birth date, COAST ADA Paratransit Card, or COAST Half-Fare Card. Please contact COAST to apply for a Half-Fare Card.

Multi-Ride Tickets and Passes

*Available at **www.coastbus.org** or call 603-743-5777, TTY 711.*

Unlimited Monthly Pass **$ 52**

Unlimited rides on COAST Routes for the month.

YOUR RIGHTS

COAST adheres to all Federal regulations regarding Civil Rights. If you need to request an ADA Reasonable Modification/ Accommodation, or if you believe you have been discriminated against or would like to file a complaint under the ADA or Title VI, please contact COAST's Civil Rights Officer at 603-516-0788, TTY 711 or email CivilRights@coastbus.org.

NO SERVICE DAYS

COAST does not operate on the following holidays:

- New Year's Day
- Martin Luther King Jr./ Civil Rights Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Eve Day
- Christmas Day

COAST

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This brochure is available in alternative formats upon request.

Bus Schedule & Map 40

COAST

Effective 09.17.22

ROUTE 40

Portsmouth • Islington • Borthwick

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MAP OUT
YOUR GAME PLAN

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COAST SYSTEM MAP

OUTBOUND • INBOUND

Route 40 Portsmouth • Islington • Borthwick

How to Read the Schedule

Printed bus schedules only show the timepoints ● (major bus stops where the bus will hold until the scheduled departure time). In between those timepoints are many other stops that you can use. For a full listing of bus stops, visit **www.coastbus.org**, or use the Passio GO! App.

The times shown represent the number of minutes after the hour that the bus will depart from that stop. Last stop times are arrivals. Any exceptions will be noted.

OUTBOUND (M-Sat)	Service On Every Hour		
Hanover Station - Portsmouth Transportation Center	First Bus	Minutes Past Hour	Last Bus
● Hanover Station	6:00am	:00*	7:00pm
● Islington St. (Plaza 800)	6:07am	:07*	7:07pm
● Borthwick Ave. (Ports. Hospital)	6:15am	:15*	7:15pm
● Portsmouth Transportation Center	6:23am	:23*	7:23pm

*No Service during the hour of 3pm.

INBOUND (M-Sat)	Service On Every Hour		
Portsmouth Transportation Center-Hanover Station	First Bus	Minutes Past Hour	Last Bus
● Portsmouth Transportation Center	6:24am	:24*	7:24pm
● Borthwick Ave. (Ports. Hospital)	6:31am	:31*	7:31pm
● Islington St. (Plaza 800)	6:39am	:39*	7:39pm
● Hanover Station	6:47am	:47*	7:47pm

*No Service during the hour of 3pm.

MAP IT!

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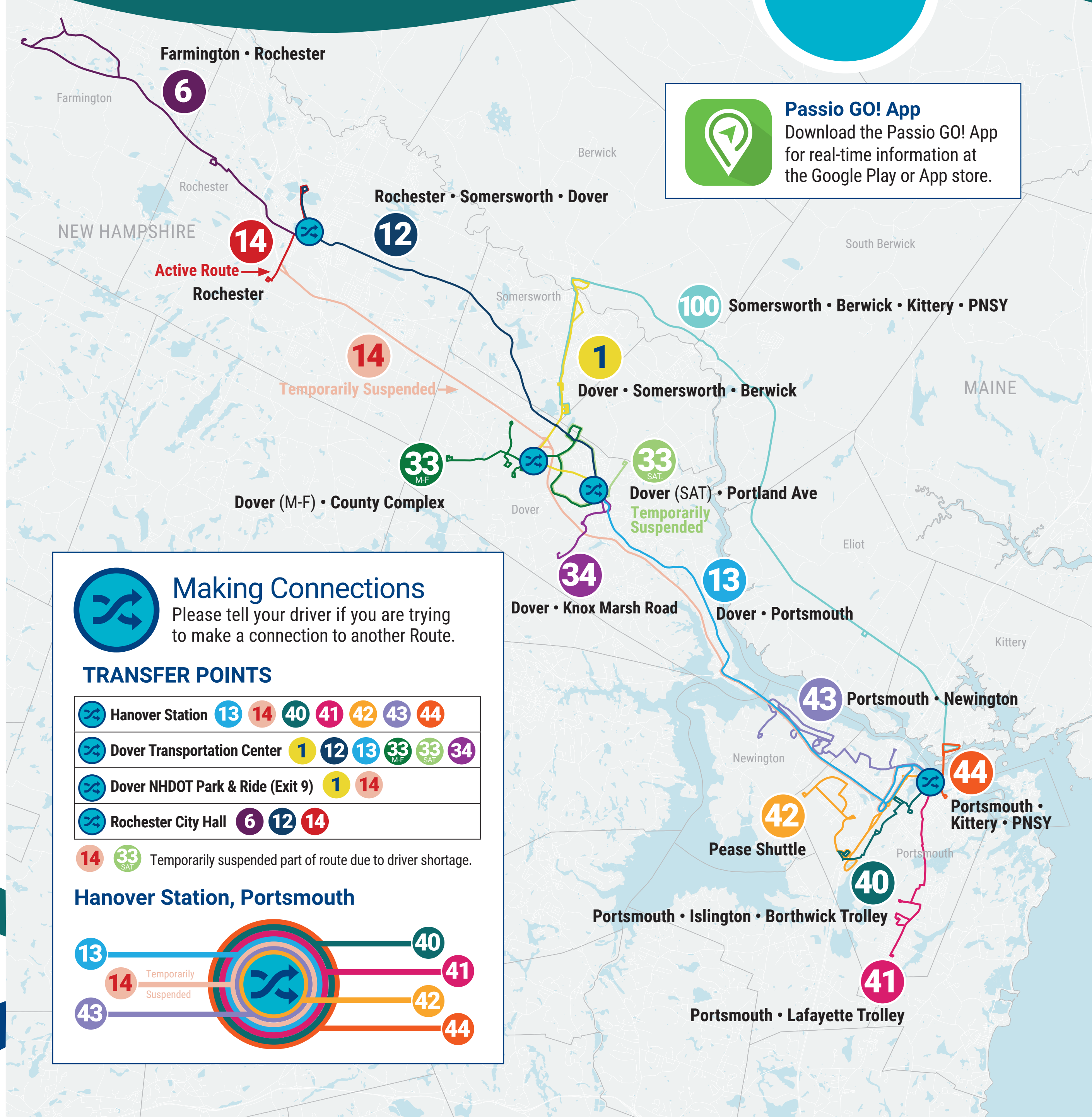

Passio GO! App
Download the Passio GO! App for real-time information at the Google Play or App store.

Making Connections

Please tell your driver if you are trying to make a connection to another Route.

TRANSFER POINTS

Hanover Station	13 14 40 41 42 43 44
Dover Transportation Center	1 12 13 33 (M-F) 33 (SAT) 34
Dover NHDOT Park & Ride (Exit 9)	1 14
Rochester City Hall	6 12 14

14 33 (SAT) Temporarily suspended part of route due to driver shortage.

Hanover Station, Portsmouth

Route 42 Map

Portsmouth • Pease Shuttle

42

Ride Information

COAST BUS FARES

Base Cash Fare **$1.50**

All passengers ages 5 and up are required to pay this fare each time they board a COAST bus.

Half-Fare **$ 0.75**

Passengers 65 and older, or passengers with a disability are entitled to pay half the cash fare. Proof of eligibility is required by showing a Medicare card, photo ID with birth date, COAST ADA Paratransit Card, or COAST Half-Fare Card. Please contact COAST to apply for a Half-Fare Card.

Multi-Ride Tickets and Passes

*Available at **www.coastbus.org** or call 603-743-5777, TTY 711.*

Unlimited Monthly Pass **$ 52**

Unlimited rides on COAST Routes for the month.

YOUR RIGHTS

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- Martin Luther King Jr./ Civil Rights Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Eve Day
- Christmas Day

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Bus Schedule & Map 42

COAST

Effective 07.01.22

ROUTE 42

Portsmouth • Pease Shuttle

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COAST SYSTEM MAP

OUTBOUND • INBOUND

Route 42 Portsmouth • Pease Shuttle

How to Read the Schedule

Printed bus schedules only show the timepoints ● (major bus stops where the bus will hold until the scheduled departure time). In between those timepoints are many other stops that you can use. For a full listing of bus stops, visit **www.coastbus.org**, or use the Passio Go! App.

The times shown represent the number of minutes after the hour that the bus will depart from that stop. Last stop times are arrivals. Any exceptions will be noted.

OUTBOUND (M-F)	Service On Every Hour		
Hanover Station - Pease Airline Terminal	First Bus	Minutes Past Hour	Last Bus
● **Hanover Station**	6:22am	:00*	6:00pm
● **Portsmouth Transportation Center**	6:33am	:11*	6:11pm
● **Pease Airline Terminal**	6:42am	:20*	6:20pm

**Regular hourly schedule starts during the hour of 7am and No Service during the hour of 10am.*

INBOUND (M-F)	Service On Every Hour		
Pease Airline Terminal - Hanover Station	First Bus	Minutes Past Hour	Last Bus
● **Pease Airline Terminal**	6:43am	:21*	6:21pm
● **Portsmouth Transportation Center**	6:47am	:25*	6:25pm
● **Hanover Station**	6:57am	:35*	6:35pm

**Regular hourly schedule starts during the hour of 7am and No Service during the hour of 10am.*

MAP IT!

For a full listing of bus stops, visit
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or use the Passio GO! App.

Passio GO! App
Download the Passio GO! App for real-time information at the Google Play or App store.

Making Connections

Please tell your driver if you are trying to make a connection to another Route.

TRANSFER POINTS

Hanover Station	13 14 40 41 42 43 44
Dover Transportation Center	1 12 13 33 M-F 33 SAT 34
Dover NHDOT Park & Ride (Exit 9)	1 14
Rochester City Hall	6 12 14

14 33 SAT Temporarily suspended part of route due to driver shortage.

Hanover Station, Portsmouth

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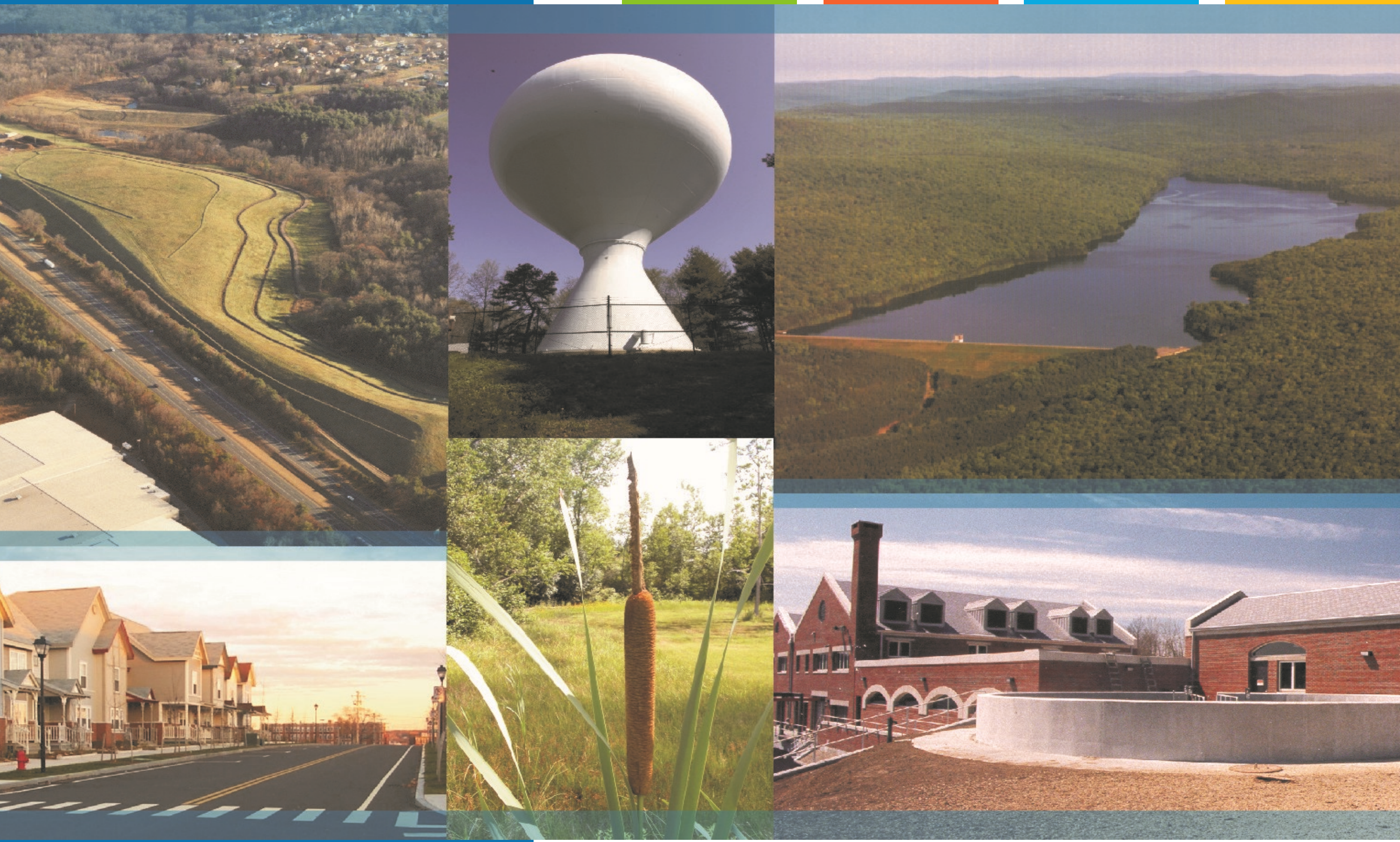


Proposed Advanced Manufacturing Facility

Portsmouth, NH

Drainage Analysis

Prepared For:

Aviation Avenue Group, LLC
210 Commerce Way Suite 300
Portsmouth, NH 03801

December 19, 2022

Last Revised: February 23, 2023

STATE OF NEW HAMPSHIRE
NEIL A. HANSEN
No. 15227
LICENSED
PROFESSIONAL ENGINEER
2/23/23

Section 1 Drainage Analysis

Appendices

\\Tighebond.com\data\Data\Projects\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Report_Evaluation\Drainage Report\P0595-015_Drainage Analysis_Rev-02.docx

Section 1
Drainage Analysis

The project site is identified as Map 308 Lot 1 on the City of Portsmouth Tax Maps. The site is located on a piece of land that is bound by Stratham Street to the north, New Hampshire Avenue to the east, Newfields Street to the south, and Rochester Avenue to the west. The proposed project is for the construction of a ±209,750 SF advanced manufacturing facility including ±18,145 SF of office space, two (2) parking areas, two (2) loading dock areas, minor realignment of a portion of Rochester Avenue, and associated site improvements consisting of underground utilities, landscaping, lighting, and a stormwater management system. There is approximately 196,665 SF of existing impervious area that is currently untreated before entering the municipal drainage system. The proposed stormwater management system has been designed to provide treatment for the existing impervious surface that are currently untreated and for ±161,130 SF of additional impervious that results from the proposed project. In addition to the on-site stormwater treatment the proposed project decreases the impervious area within the Rochester Avenue Right of Way by ±15,900 SF, while also adding seven (7) new offline catch basins to provide additional stormwater treatment within the Right of Way.

The Stormwater Management System was designed in accordance with the requirements of the New Hampshire Department of Environmental Services (NHDES) Alteration of Terrain (AoT) rules and regulations (Env-Wq 1500). The system includes deep sump catch basins with oil water separator hoods, an underground detention system and a proprietary Jellyfish Filter Treatment Unit. In accordance with Env-Wq 1500 the proposed Jellyfish Filter Treatment Unit was sized to treat the Water Quality Flow (WQF). The WQF is the peak flow rate associated with the Water Quality Volume (WQV), which is based on equivalent to the volume of runoff attributable to the first one (1) inch of rainfall. The use of a proprietary treatment unit is proposed due to the site being located within multiple remediation areas as well a Groundwater Management Zone (GMZ), and per the requirements of Env-Wq 1507.02 (c) no infiltration, filtering, or groundwater recharge practices are permitted in these areas.

1.1 Calculation Methods

The design storms analyzed in this study are the 1-year, 2-year, 10-year, 25-year and 50-year 24-hour Type III duration storm events. The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. A Type III storm pattern was used in the model. The rainfall data for these storm events was obtained from the data published by the Northeast Regional Climate Center (NRCC) at Cornell University, with an additional 15% added factor of safety as required by Env-Wq 1503.08(l) and shown in Table 1.1.

TABLE 1.1 – EXTREME PRECIPITATION ESTIMATES (NRCC)

YEAR	24-hr Estimate (inches)	+ 15% (inches)
1	2.66	3.06
2	3.21	3.69
10	4.87	5.60
25	6.17	7.10
50	7.40	8.51

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow, and channel flow. Runoff curve numbers were calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References:

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.

2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.

3. "Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

1.2 Pre-Development Conditions

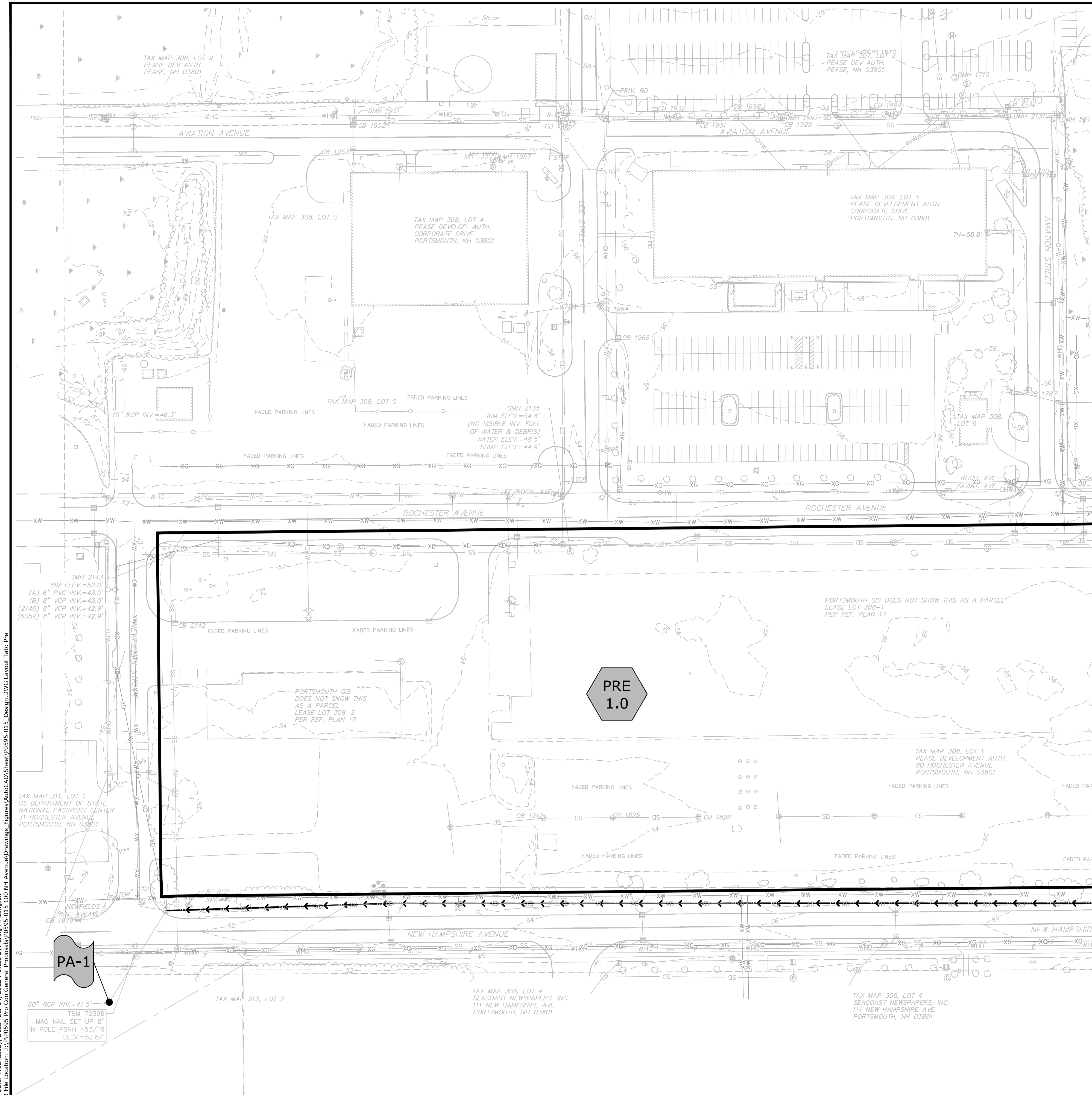
To analyze the Pre-Development condition, the site has been modeled utilizing one (1) sub-catchment area (PRE-1.0) with the distinct point of analysis (PA-1). This point of analysis and watershed are depicted on the plan entitled "Pre-Development Watershed Plan", Sheet C-801.

The point of analysis and their contributing watershed area is described below:

Point of Analysis One (PA-1)

Point of analysis PA-1 is comprised of one (1) watershed area (PRE-1.0). This area includes the land that is currently utilized as an abandoned parking lot along with a grassed area. Runoff from this area travels southwest to northeast across the site via overland flow which is then collected in a closed drainage system then flowing through Point of Analysis 1 (PA-1).

1.2.1 Pre-Development Watershed Plan



LEGEND

PRE-DEVELOPMENT WATERSHED BOUNDARY

SITE SPECIFIC SOIL SURVEY BOUNDARIES

LONGEST FLOW PATH

PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION

PA-1 — POINT OF ANALYSIS

WEB SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE, SLOPE RATING	HSG
699	URBAN LAND	C[1]

1 - HSG OF C HAS BEEN ASSUMED BASED ON SOIL CHARACTERISTICS OF SURROUNDING SOILS.

SCALE IN FEET: 0, 60', 120'
GRAPHIC SCALE

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Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
A	12/19/2022	TAC Submission

PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

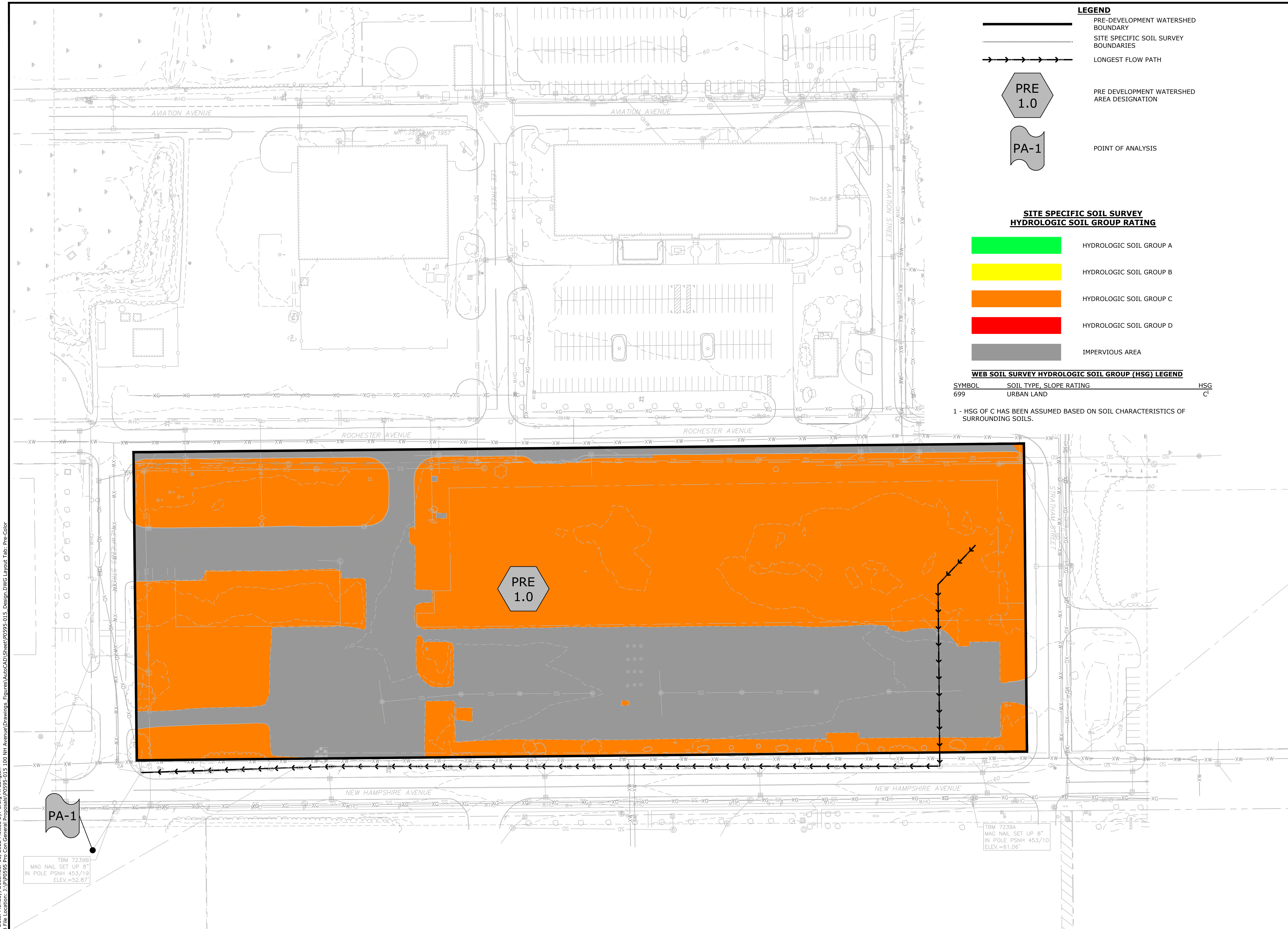
PRE-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

Last Save Date: December 14, 2022 11:43 AM By: CML
Plot Date: Wednesday, December 14, 2022 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: Pre

1.2.2 Pre-Development Soil Plan



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DATE:	12/19/2022
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

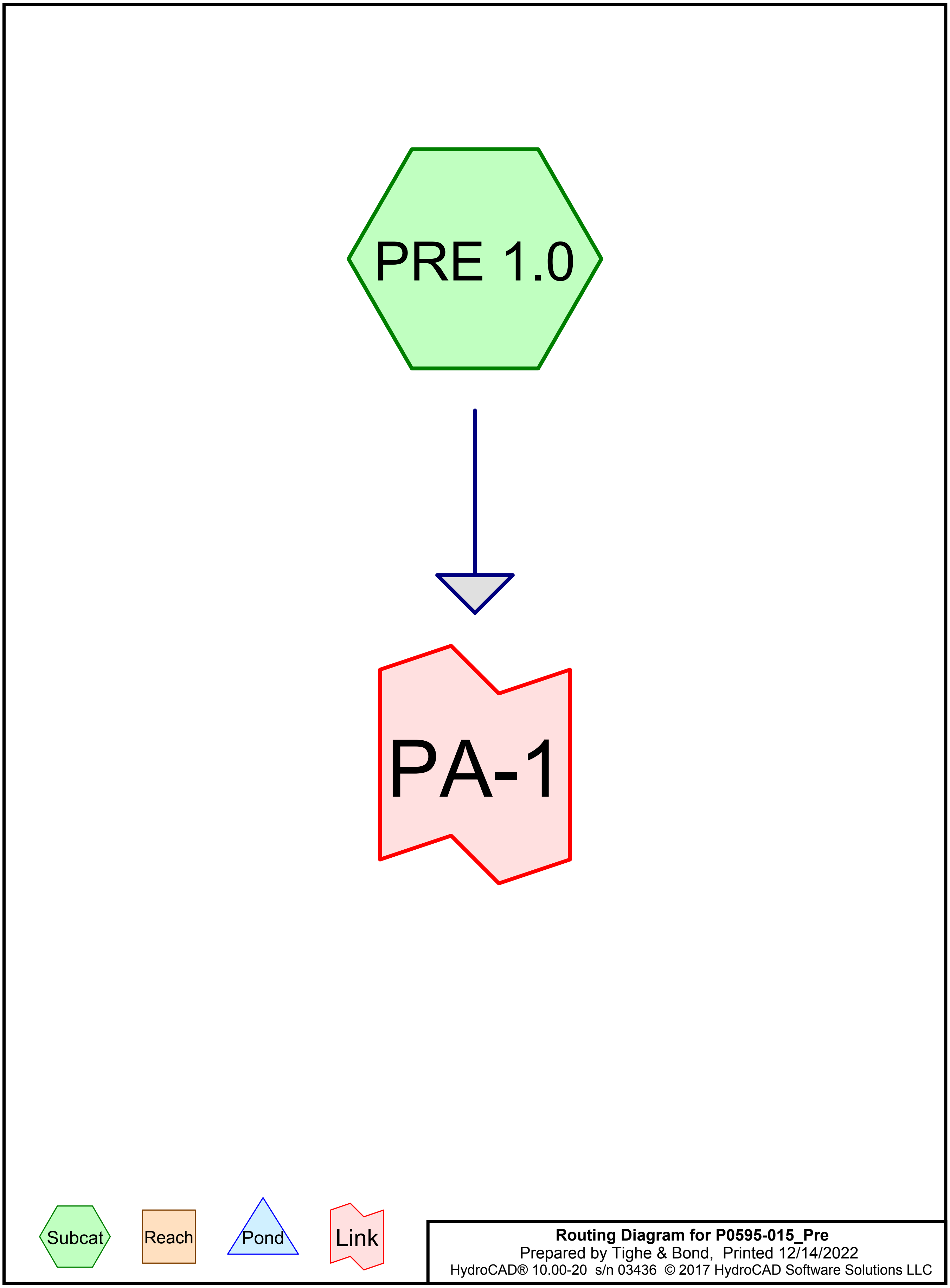
PRE-DEVELOPMENT SOIL COVERAGE COLOR PLAN

SCALE: AS SHOWN

C-803

Last Save Date: December 12, 2022 4:02 PM By: CML
Plot Date: Monday, December 12, 2022 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: Pre-Color

1.2.3 Pre-Development Calculation



Routing Diagram for P0595-015_Pre
Prepared by Tighe & Bond, Printed 12/14/2022

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.914	74	>75% Grass cover, Good, HSG C (PRE 1.0)
4.515	98	Paved parking, HSG C (PRE 1.0)
11.429	**83**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=497,841 sf 39.50% Impervious Runoff Depth>1.49"
Flow Length=1,512' Tc=5.0 min CN=83 Runoff=20.01 cfs 1.423 af

Link PA-1: Inflow=20.01 cfs 1.423 af
Primary=20.01 cfs 1.423 af

Total Runoff Area = 11.429 ac Runoff Volume = 1.423 af Average Runoff Depth = 1.49"
60.50% Pervious = 6.914 ac 39.50% Impervious = 4.515 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=497,841 sf 39.50% Impervious Runoff Depth>2.02"
Flow Length=1,512' Tc=5.0 min CN=83 Runoff=27.08 cfs 1.922 af

Link PA-1: Inflow=27.08 cfs 1.922 af
Primary=27.08 cfs 1.922 af

Total Runoff Area = 11.429 ac Runoff Volume = 1.922 af Average Runoff Depth = 2.02"
60.50% Pervious = 6.914 ac 39.50% Impervious = 4.515 ac

Summary for Subcatchment PRE 1.0:

Runoff = 49.71 cfs @ 12.07 hrs, Volume= 3.542 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.60"

Area (sf)	CN	Description
301,177	74	>75% Grass cover, Good, HSG C
196,664	98	Paved parking, HSG C
497,841	83	Weighted Average
301,177		60.50% Pervious Area
196,664		39.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0150	0.83		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
0.2	38	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
2.3	595	0.0030	4.27	13.42	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
2.3	869	0.0030	6.20	59.70	**Pipe Channel,** 42.0" Round Area= 9.6 sf Perim= 11.0' r= 0.88' n= 0.012 Concrete pipe, finished
5.0	1,512	Total			

Summary for Link PA-1:

Inflow Area = 11.429 ac, 39.50% Impervious, Inflow Depth > 3.72" for 10-Year event
Inflow = 49.71 cfs @ 12.07 hrs, Volume= 3.542 af
Primary = 49.71 cfs @ 12.07 hrs, Volume= 3.542 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=497,841 sf 39.50% Impervious Runoff Depth>5.12"
Flow Length=1,512' Tc=5.0 min CN=83 Runoff=67.64 cfs 4.876 af

Link PA-1: Inflow=67.64 cfs 4.876 af
Primary=67.64 cfs 4.876 af

Total Runoff Area = 11.429 ac Runoff Volume = 4.876 af Average Runoff Depth = 5.12"
60.50% Pervious = 6.914 ac 39.50% Impervious = 4.515 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=497,841 sf 39.50% Impervious Runoff Depth>6.46"
Flow Length=1,512' Tc=5.0 min CN=83 Runoff=84.49 cfs 6.154 af

Link PA-1: Inflow=84.49 cfs 6.154 af
Primary=84.49 cfs 6.154 af

Total Runoff Area = 11.429 ac Runoff Volume = 6.154 af Average Runoff Depth = 6.46"
60.50% Pervious = 6.914 ac 39.50% Impervious = 4.515 ac

1.3 Post-Development Conditions

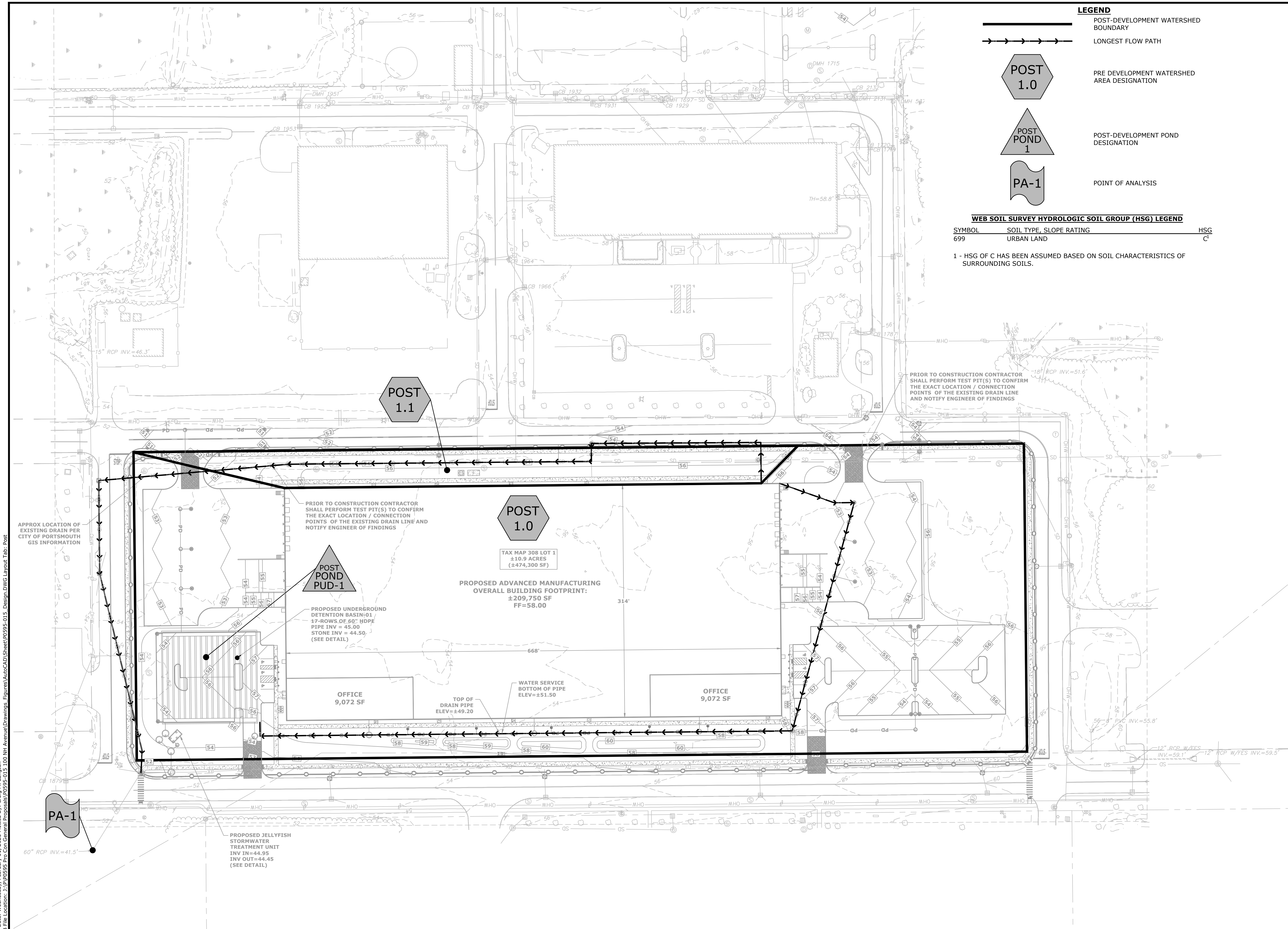
The post-development drainage condition is characterized by two (2) sub watershed areas POST-1.0 and POST-1.1modeled at the same point of analysis as the pre-development condition. This point of analysis and watersheds are depicted on the plan entitled "Post Development Watershed Plan", Sheets C-802.

The point of analysis and their contributing watershed area is described below:

Point of Analysis One (PA-1)

Point of analysis PA-1 is comprised of two (2) sub watershed areas POST-1.0 and POST-1.1 as shown on the Post-Development Watershed Plan (Sheet C-802). These areas include the additional proposed impervious area on site as well the proposed green / landscaped areas on site. The proposed impervious areas generating runoff on site include roofs, parking lots, concrete sidewalks, and loading dock areas. Runoff from site is captured via overland flow then captured in the proposed onsite drainage system where it is detained and treated prior to being discharged through Point of Analysis 1 (PA-1).

1.3.1 Post-Development Watershed Plan



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C	2/2/2023	AoT Submission
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

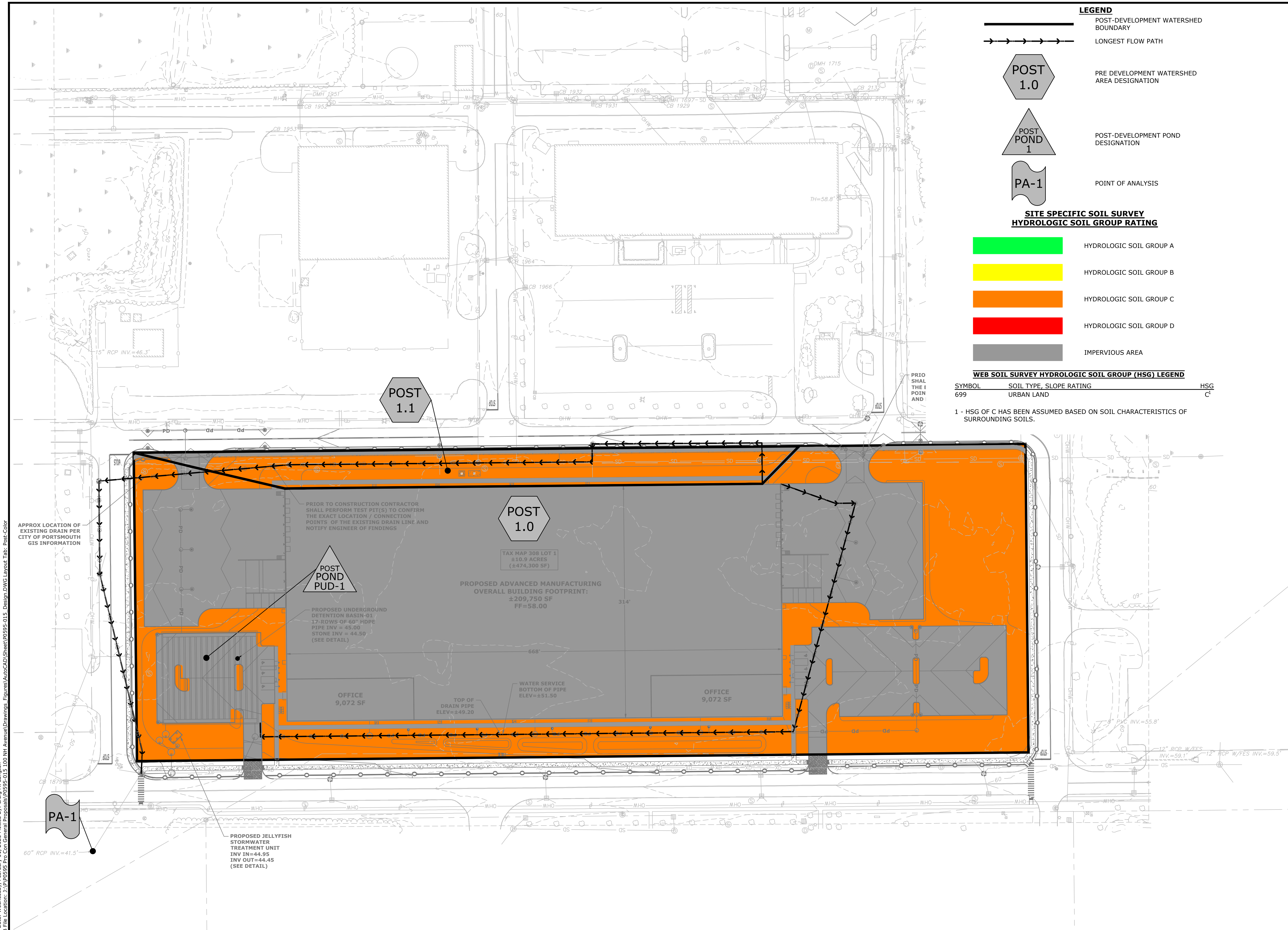
PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

POST-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

1.3.2 Post-Development Soil Plan



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T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: Post-Color

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Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
C	2/2/2023	AoT Submission
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

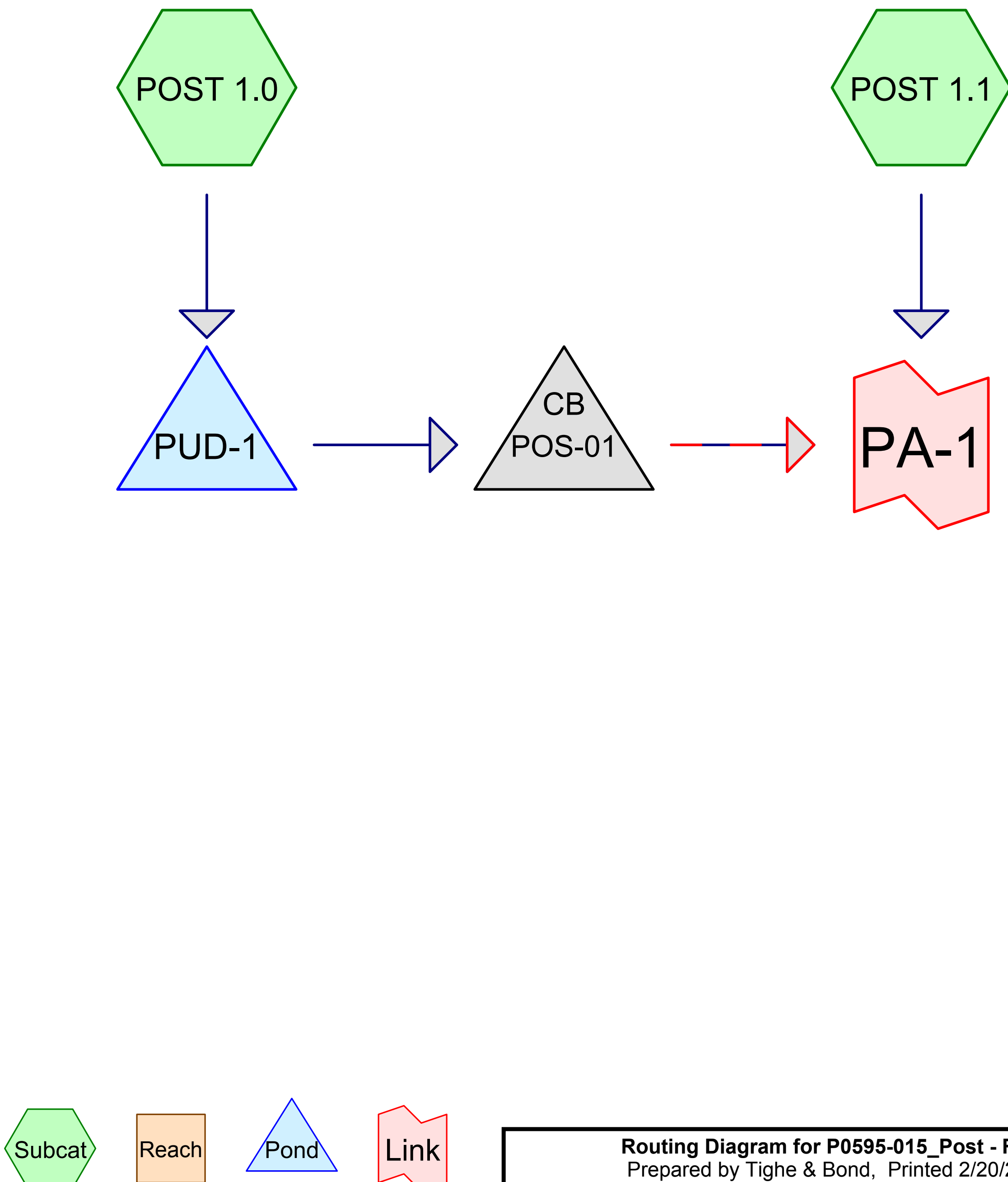
PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

POST-DEVELOPMENT SOIL COVERAGE COLOR PLAN

SCALE: AS SHOWN

C-804

1.3.3 Post-Development Calculation



Routing Diagram for P0595-015_Post - Rev-02
Prepared by Tighe & Bond, Printed 2/20/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.146	74	>75% Grass cover, Good, HSG C (POST 1.0, POST 1.1)
2.538	98	Paved parking, HSG C (POST 1.0, POST 1.1)
5.745	98	Roofs, HSG C (POST 1.0)
11.429	**91**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPOST 1.0: Runoff Area=459,347 sf 76.46% Impervious Runoff Depth>2.22"
Flow Length=1,156' Tc=5.3 min CN=92 Runoff=26.64 cfs 1.948 af

SubcatchmentPOST 1.1: Runoff Area=38,495 sf 24.82% Impervious Runoff Depth>1.29"
Flow Length=1,333' Tc=11.1 min CN=80 Runoff=1.11 cfs 0.095 af

Pond POS-01: Peak Elev=46.41' Inflow=13.67 cfs 1.948 af
Primary=9.53 cfs 1.733 af Secondary=4.14 cfs 0.215 af Outflow=13.67 cfs 1.948 af

Pond PUD-1: Peak Elev=47.22' Storage=14,576 cf Inflow=26.64 cfs 1.948 af
Outflow=13.67 cfs 1.948 af

Link PA-1: Inflow=14.71 cfs 2.043 af
Primary=14.71 cfs 2.043 af

Total Runoff Area = 11.429 ac Runoff Volume = 2.043 af Average Runoff Depth = 2.14"
27.53% Pervious = 3.146 ac 72.47% Impervious = 8.283 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPOST 1.0: Runoff Area=459,347 sf 76.46% Impervious Runoff Depth>2.82"
Flow Length=1,156' Tc=5.3 min CN=92 Runoff=33.46 cfs 2.476 af

SubcatchmentPOST 1.1: Runoff Area=38,495 sf 24.82% Impervious Runoff Depth>1.78"
Flow Length=1,333' Tc=11.1 min CN=80 Runoff=1.55 cfs 0.131 af

Pond POS-01: Peak Elev=46.56' Inflow=17.17 cfs 2.476 af
Primary=11.23 cfs 2.148 af Secondary=5.94 cfs 0.327 af Outflow=17.17 cfs 2.476 af

Pond PUD-1: Peak Elev=47.64' Storage=18,987 cf Inflow=33.46 cfs 2.476 af
Outflow=17.17 cfs 2.476 af

Link PA-1: Inflow=18.60 cfs 2.607 af
Primary=18.60 cfs 2.607 af

Total Runoff Area = 11.429 ac Runoff Volume = 2.607 af Average Runoff Depth = 2.74"
27.53% Pervious = 3.146 ac 72.47% Impervious = 8.283 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPOST 1.0: Runoff Area=459,347 sf 76.46% Impervious Runoff Depth>4.67"
Flow Length=1,156' Tc=5.3 min CN=92 Runoff=53.97 cfs 4.107 af

SubcatchmentPOST 1.1: Runoff Area=38,495 sf 24.82% Impervious Runoff Depth>3.42"
Flow Length=1,333' Tc=11.1 min CN=80 Runoff=2.97 cfs 0.252 af

Pond POS-01: Peak Elev=47.43' Inflow=37.97 cfs 4.106 af
Primary=18.10 cfs 3.311 af Secondary=19.87 cfs 0.795 af Outflow=37.97 cfs 4.106 af

Pond PUD-1: Peak Elev=48.41' Storage=27,154 cf Inflow=53.97 cfs 4.107 af
Outflow=37.97 cfs 4.106 af

Link PA-1: Inflow=40.94 cfs 4.357 af
Primary=40.94 cfs 4.357 af

Total Runoff Area = 11.429 ac Runoff Volume = 4.359 af Average Runoff Depth = 4.58"
27.53% Pervious = 3.146 ac 72.47% Impervious = 8.283 ac

Summary for Subcatchment POST 1.0:

Runoff = 53.97 cfs @ 12.08 hrs, Volume= 4.107 af, Depth> 4.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.60"

Area (sf)	CN	Description
250,258	98	Roofs, HSG C
108,108	74	>75% Grass cover, Good, HSG C
100,981	98	Paved parking, HSG C
459,347	92	Weighted Average
108,108		23.54% Pervious Area
351,239		76.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	77	0.0125	1.16		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
0.2	27	0.0125	2.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	102	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.9	216	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.4	125	0.0050	5.09	16.00	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.8	223	0.0025	4.72	33.35	**Pipe Channel,** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.013 Corrugated PE, smooth interior
0.8	222	0.0020	4.68	44.99	**Pipe Channel,** 42.0" Round Area= 9.6 sf Perim= 11.0' r= 0.88' n= 0.013 Corrugated PE, smooth interior
0.6	164	0.0015	4.43	55.63	**Pipe Channel,** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013 Corrugated PE, smooth interior
5.3	1,156	Total			

Summary for Subcatchment POST 1.1:

Runoff = 2.97 cfs @ 12.16 hrs, Volume= 0.252 af, Depth> 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.60"

Area (sf)	CN	Description
0	98	Roofs, HSG C
28,940	74	>75% Grass cover, Good, HSG C
9,555	98	Paved parking, HSG C
38,495	80	Weighted Average
28,940		75.18% Pervious Area
9,555		24.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	55	0.0500	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.69"
1.7	228	0.0125	2.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.5	1,050	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
11.1	1,333	Total			

Summary for Pond POS-01:

Inflow Area = 10.545 ac, 76.46% Impervious, Inflow Depth > 4.67" for 10-Year event
Inflow = 37.97 cfs @ 12.15 hrs, Volume= 4.106 af
Outflow = 37.97 cfs @ 12.15 hrs, Volume= 4.106 af, Atten= 0%, Lag= 0.0 min
Primary = 18.10 cfs @ 12.15 hrs, Volume= 3.311 af
Secondary = 19.87 cfs @ 12.15 hrs, Volume= 0.795 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 47.43' @ 12.15 hrs
Flood Elev= 54.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.00'	**24.0" Vert. To JellyFish Treatment Unit** C= 0.600
#2	Secondary	45.65'	**36.0" Vert. To PDMH-13** C= 0.600

Primary OutFlow Max=18.06 cfs @ 12.15 hrs HW=47.42' TW=0.00' (Dynamic Tailwater)
└─**1=To JellyFish Treatment Unit** (Orifice Controls 18.06 cfs @ 5.75 fps)

Secondary OutFlow Max=19.75 cfs @ 12.15 hrs HW=47.42' TW=0.00' (Dynamic Tailwater)
└─**2=To PDMH-13** (Orifice Controls 19.75 cfs @ 4.54 fps)

Summary for Pond PUD-1:

Inflow Area = 10.545 ac, 76.46% Impervious, Inflow Depth > 4.67" for 10-Year event
Inflow = 53.97 cfs @ 12.08 hrs, Volume= 4.107 af
Outflow = 37.97 cfs @ 12.15 hrs, Volume= 4.106 af, Atten= 30%, Lag= 4.6 min
Primary = 37.97 cfs @ 12.15 hrs, Volume= 4.106 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Starting Elev= 45.00' Surf.Area= 16,096 sf Storage= 0 cf
Peak Elev= 48.41' @ 12.16 hrs Surf.Area= 16,096 sf Storage= 27,154 cf
Flood Elev= 50.00' Surf.Area= 16,096 sf Storage= 40,389 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 13.8 min (792.0 - 778.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	44.50'	0 cf	**128.59'W x 125.17'L x 6.08'H Field A** 97,923 cf Overall - 48,988 cf Embedded = 48,934 cf x 0.0% Voids
#2A	45.00'	41,267 cf	**ADS N-12 60"** x 85 Inside #1 Inside= 59.5"W x 59.5"H => 19.30 sf x 20.00'L = 386.0 cf Outside= 67.0"W x 67.0"H => 22.91 sf x 20.00'L = 458.2 cf Row Length Adjustment= +11.00' x 19.30 sf x 17 rows 125.59' Header x 19.30 sf x 2 = 4,847.8 cf Inside
		41,267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	45.00'	**24.0" Vert. Orifice** C= 0.600
#2	Primary	47.50'	**8.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=36.86 cfs @ 12.15 hrs HW=48.40' TW=47.42' (Dynamic Tailwater)
—**1=Orifice** (Orifice Controls 14.95 cfs @ 4.76 fps)
—**2=Sharp-Crested Rectangular Weir** (Weir Controls 21.90 cfs @ 3.11 fps)

Summary for Link PA-1:

Inflow Area = 11.429 ac, 72.47% Impervious, Inflow Depth > 4.57" for 10-Year event
Inflow = 40.94 cfs @ 12.15 hrs, Volume= 4.357 af
Primary = 40.94 cfs @ 12.15 hrs, Volume= 4.357 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPOST 1.0: Runoff Area=459,347 sf 76.46% Impervious Runoff Depth>6.15"
Flow Length=1,156' Tc=5.3 min CN=92 Runoff=69.89 cfs 5.404 af

SubcatchmentPOST 1.1: Runoff Area=38,495 sf 24.82% Impervious Runoff Depth>4.78"
Flow Length=1,333' Tc=11.1 min CN=80 Runoff=4.12 cfs 0.352 af

Pond POS-01: Peak Elev=48.06' Inflow=53.90 cfs 5.400 af
Primary=21.74 cfs 4.143 af Secondary=32.16 cfs 1.257 af Outflow=53.90 cfs 5.400 af

Pond PUD-1: Peak Elev=48.88' Storage=31,816 cf Inflow=69.89 cfs 5.404 af
Outflow=53.90 cfs 5.400 af

Link PA-1: Inflow=57.84 cfs 5.752 af
Primary=57.84 cfs 5.752 af

Total Runoff Area = 11.429 ac Runoff Volume = 5.756 af Average Runoff Depth = 6.04"
27.53% Pervious = 3.146 ac 72.47% Impervious = 8.283 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPOST 1.0: Runoff Area=459,347 sf 76.46% Impervious Runoff Depth>7.54"
Flow Length=1,156' Tc=5.3 min CN=92 Runoff=84.75 cfs 6.630 af

SubcatchmentPOST 1.1: Runoff Area=38,495 sf 24.82% Impervious Runoff Depth>6.09"
Flow Length=1,333' Tc=11.1 min CN=80 Runoff=5.21 cfs 0.449 af

Pond POS-01: Peak Elev=48.67' Inflow=66.77 cfs 6.622 af
Primary=24.72 cfs 4.887 af Secondary=42.05 cfs 1.735 af Outflow=66.77 cfs 6.622 af

Pond PUD-1: Peak Elev=49.34' Storage=35,911 cf Inflow=84.75 cfs 6.630 af
Outflow=66.77 cfs 6.622 af

Link PA-1: Inflow=71.62 cfs 7.071 af
Primary=71.62 cfs 7.071 af

Total Runoff Area = 11.429 ac Runoff Volume = 7.079 af Average Runoff Depth = 7.43"
27.53% Pervious = 3.146 ac 72.47% Impervious = 8.283 ac

1.4 Peak Rate Comparisons

The following table summarizes and compares the pre- and post-development peak runoff rates from the 1-year, 2-year, 10-year, 25-year and 50-year storm events at each point of analysis.

Table 1.4 – Comparison of Pre- and Post-Development Flows (CFS)

Point of Analysis	1-Year Storm	2-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm
Pre-Development Watershed (PA-1)	20.01	27.08	49.71	67.64	84.49
Post-Development Watershed (PA-1)	14.71	18.60	40.94	57.84	71.62

The Peak Runoff Control Requirements of Env-Wq 1507.06 are required to be met for the point of analysis. As shown in Table 1.4 the Post-Development flows are decreased from the Pre-Development flows at PA-1.

The Channel Protection requirements of Env-Wq 1507.05 are met for the point of analysis as the 2-year, 24-hour Post-Development peak flowrate (18.60 cfs) is less than or equal to the 1-year, 24-hour pre-development peak flowrate (20.01 cfs).

1.5 Mitigation Description

1.5.1 Mitigation Calculations

The proposed project area has been evaluated to treat the required water quality flow (WQF) per the requirements of Env-Wq 1500. These calculations have been provided in appendix E of this report.

1.5.2 Pre-Treatment Methods for Protecting Water Quality

Pretreatment methods for protecting water quality on this site include offline deep sump catch basins with oil water separator hoods.

Table 1.5 – Pollutant Removal Efficiencies

BMP	Total Suspended Solids	Total Phosphorus
Deep Sump Catch Basin w/Hood[1]	15%	5%

1. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix B.

1.5.3 Treatment Methods for Protecting Water Quality

The runoff from proposed impervious areas will be captured in the proposed closed drainage system directed to an underground detention system and then treated by an ADS Water Quality Unit. The water quality unit has been sized to treat the Water Quality Flow from the contributing subcatchment areas. The system has been designed with an internal bypass structure that diverts peak flows greater than the 1-inch storm event.

Table 1.6 below, shows design pollutant removal efficient for the proposed Jellyfish Filter Treatment Unit which meets the requirements of Env-Wq 1508.10. Additional reference information on the proposed Jellyfish Filter Treatment Unit can be found in Appendix C.

Table 1.6 – Pollutant Removal Efficiencies		
BMP	Total Suspended Solids	Total Phosphorus
Jellyfish Filter Treatment Unit [1]	89%	59%

1. Pollutant removal efficiencies per Contech Engineered Solutions Jellyfish Filter Performance testing results.

Table 1.7 – Pollutant Removal Calculations				
Total Suspended Solids Removal				
BMP	TSS Removal Rate	Starting TSS Load	TSS Removed	Remaining TSS Load
Deep Sump Catch Basin w/Hood[1]	0.15	1.00	0.15	0.85
Jellyfish Filter Treatment Unit [2]	0.89	0.85	0.76	0.09
			Total Suspended Solids Removed:	**91%**

Total Phosphorus Removal				
	TP Removal Rate	Starting TP Load	TP Removed	Remaining TP Load
Deep Sump Catch Basin w/Hood[1]	0.05	1.00	0.05	0.95
Jellyfish Filter Treatment Unit [2]	0.59	0.95	0.56	0.39
			Total Phosphorus Removed:	**61%**

1. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix B.
2. Pollutant removal efficiencies per Contech Engineered Solutions Jellyfish Filter Performance testing results.

APPENDIX A

(Bound Separately)

APPENDIX B

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.808 degrees West
Latitude	43.075 degrees North
Elevation	0 feet
Date/Time	Tue, 29 Jun 2021 09:16:17 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.92	**1yr**	2.35	2.81	3.21	3.94	4.54	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.51	1.94	2.49	3.21	3.57	**2yr**	2.84	3.43	3.93	4.67	5.32	**2yr**
5yr	0.37	0.58	0.73	0.97	1.24	1.60	**5yr**	1.07	1.46	1.88	2.43	3.14	4.07	4.57	**5yr**	3.60	4.40	5.03	5.93	6.70	**5yr**
10yr	0.41	0.64	0.81	1.11	1.44	1.88	**10yr**	1.25	1.72	2.22	2.88	3.74	4.87	5.53	**10yr**	4.31	5.31	6.07	7.10	7.98	**10yr**
25yr	0.47	0.75	0.96	1.32	1.76	2.32	**25yr**	1.52	2.13	2.76	3.61	4.73	6.17	7.10	**25yr**	5.46	6.82	7.78	9.02	10.06	**25yr**
50yr	0.53	0.85	1.09	1.52	2.05	2.74	**50yr**	1.77	2.51	3.27	4.30	5.65	7.40	8.58	**50yr**	6.55	8.25	9.40	10.81	11.99	**50yr**
100yr	0.60	0.97	1.25	1.76	2.39	3.22	**100yr**	2.06	2.96	3.86	5.11	6.74	8.86	10.38	**100yr**	7.84	9.98	11.35	12.96	14.30	**100yr**
200yr	0.67	1.09	1.41	2.02	2.79	3.80	**200yr**	2.41	3.49	4.58	6.09	8.06	10.62	12.55	**200yr**	9.40	12.07	13.71	15.54	17.05	**200yr**
500yr	0.79	1.30	1.69	2.45	3.43	4.71	**500yr**	2.96	4.34	5.71	7.65	10.19	13.50	16.15	**500yr**	11.95	15.53	17.61	19.77	21.55	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.89	**1yr**	0.63	0.87	0.92	1.32	1.66	2.23	2.53	**1yr**	1.97	2.43	2.85	3.16	3.88	**1yr**
2yr	0.32	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.05	3.46	**2yr**	2.70	3.32	3.82	4.55	5.07	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.13	2.74	3.80	4.21	**5yr**	3.36	4.05	4.71	5.54	6.26	**5yr**
10yr	0.39	0.59	0.73	1.03	1.32	1.60	**10yr**	1.14	1.56	1.81	2.40	3.07	4.38	4.89	**10yr**	3.88	4.70	5.46	6.43	7.22	**10yr**
25yr	0.44	0.67	0.83	1.19	1.56	1.90	**25yr**	1.35	1.86	2.10	2.78	3.56	4.70	5.94	**25yr**	4.16	5.72	6.69	7.84	8.73	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.17	**50yr**	1.53	2.12	2.35	3.10	3.97	5.31	6.88	**50yr**	4.70	6.61	7.80	9.11	10.08	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.47	**100yr**	1.74	2.42	2.63	3.45	4.40	5.96	7.96	**100yr**	5.27	7.65	9.09	10.60	11.64	**100yr**
200yr	0.59	0.89	1.13	1.64	2.29	2.82	**200yr**	1.98	2.76	2.94	3.83	4.86	6.67	9.21	**200yr**	5.91	8.85	10.59	12.34	13.46	**200yr**
500yr	0.69	1.03	1.32	1.92	2.73	3.38	**500yr**	2.36	3.30	3.41	4.39	5.56	7.76	11.16	**500yr**	6.87	10.73	12.98	15.12	16.29	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.75	2.21	3.00	3.14	**1yr**	2.66	3.02	3.58	4.37	5.05	**1yr**
2yr	0.33	0.52	0.64	0.86	1.06	1.26	**2yr**	0.92	1.24	1.48	1.96	2.51	3.43	3.69	**2yr**	3.03	3.54	4.07	4.82	5.64	**2yr**
5yr	0.40	0.61	0.76	1.05	1.33	1.61	**5yr**	1.15	1.58	1.88	2.53	3.24	4.33	4.93	**5yr**	3.84	4.74	5.36	6.34	7.13	**5yr**
10yr	0.47	0.71	0.89	1.24	1.60	1.96	**10yr**	1.38	1.92	2.27	3.09	3.93	5.33	6.16	**10yr**	4.72	5.92	6.75	7.80	8.71	**10yr**
25yr	0.57	0.87	1.08	1.54	2.03	2.55	**25yr**	1.75	2.49	2.93	4.05	5.10	7.79	8.26	**25yr**	6.90	7.95	9.02	10.27	11.35	**25yr**
50yr	0.66	1.01	1.26	1.81	2.43	3.10	**50yr**	2.10	3.03	3.57	4.96	6.24	9.76	10.34	**50yr**	8.64	9.94	11.25	12.63	13.88	**50yr**
100yr	0.78	1.18	1.47	2.13	2.92	3.77	**100yr**	2.52	3.68	4.34	6.10	7.64	12.21	12.94	**100yr**	10.81	12.44	14.02	15.57	16.99	**100yr**
200yr	0.91	1.37	1.73	2.51	3.50	4.59	**200yr**	3.02	4.49	5.29	7.51	9.36	15.32	16.21	**200yr**	13.56	15.59	17.49	19.17	20.80	**200yr**
500yr	1.12	1.67	2.15	3.13	4.44	5.95	**500yr**	3.84	5.81	6.86	9.90	12.27	20.70	21.84	**500yr**	18.32	21.00	23.45	25.25	27.19	**500yr**

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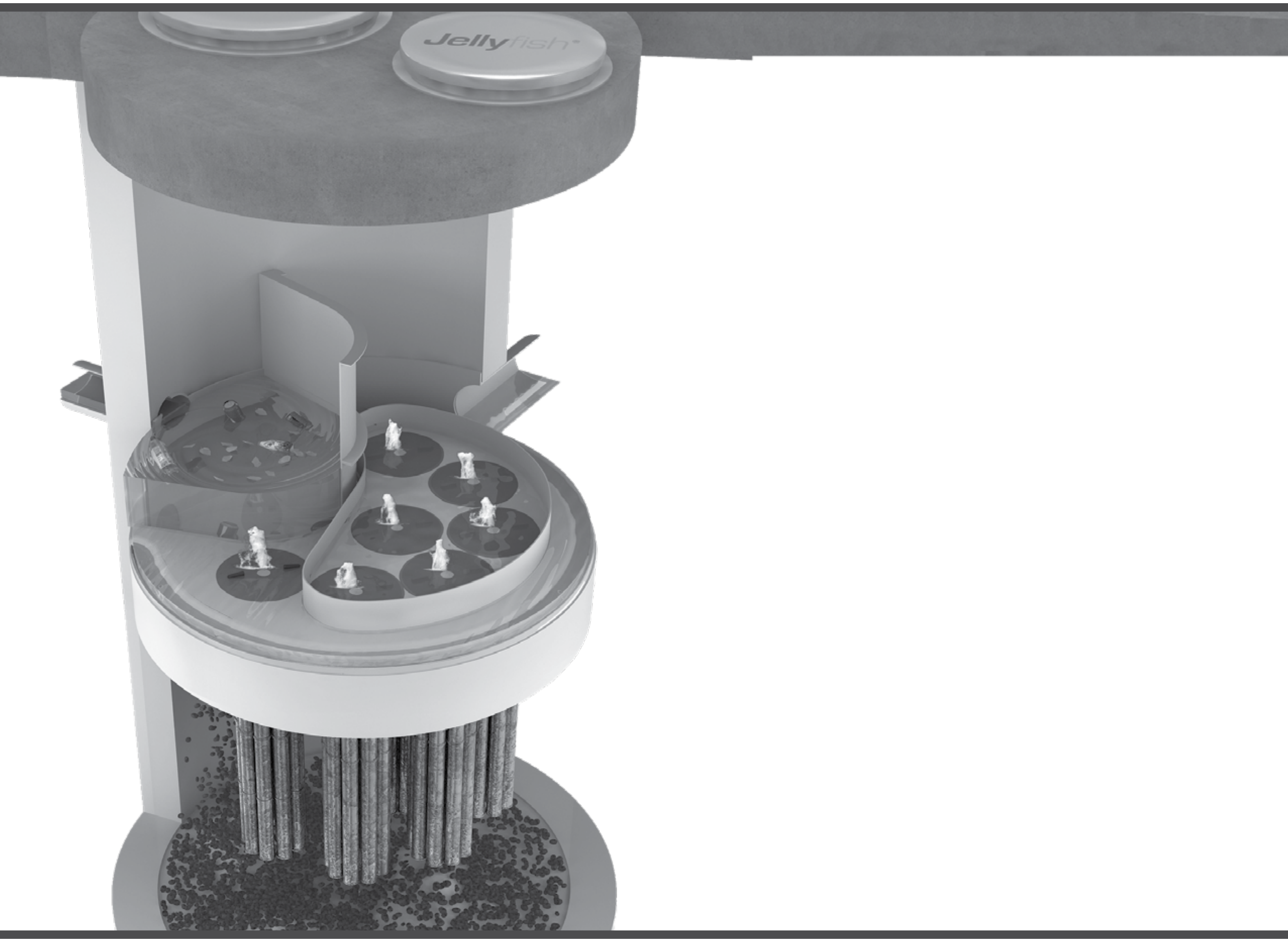
APPENDIX C

Jellyfish® Filter Maintenance Guide



Jellyfish®

JELLYFISH® FILTER
INSPECTION & MAINTENANCE GUIDE

Jellyfish units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the Jellyfish filter to be successful, it is imperative that all other components be properly maintained. The maintenance and repair of upstream facilities should be carried out prior to Jellyfish maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

TABLE OF CONTENTS

1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

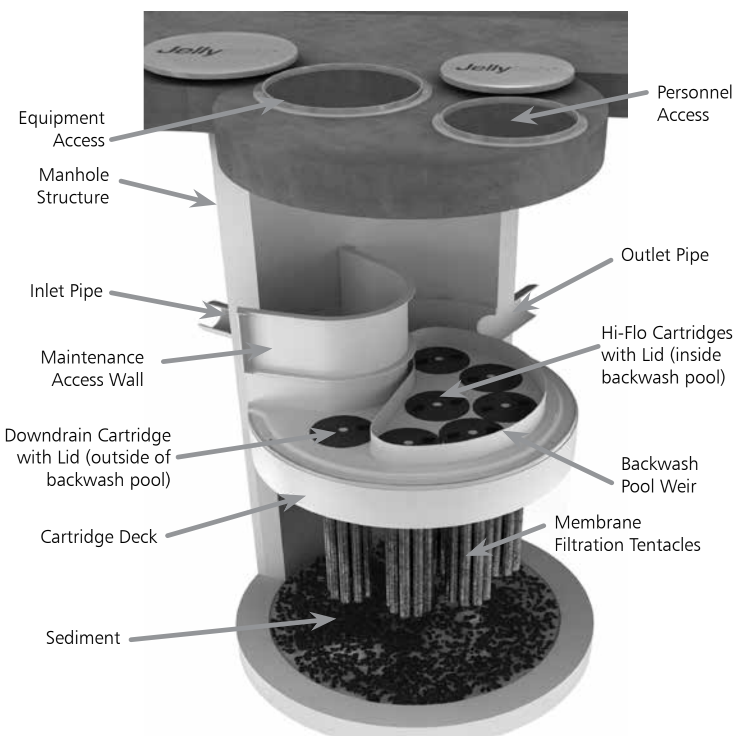
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.

Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16”) accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. ***Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs***.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.

Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. ***Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane***.

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.

Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.

Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. ***Caution: Do not force the cartridge downward; damage may occur.***
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

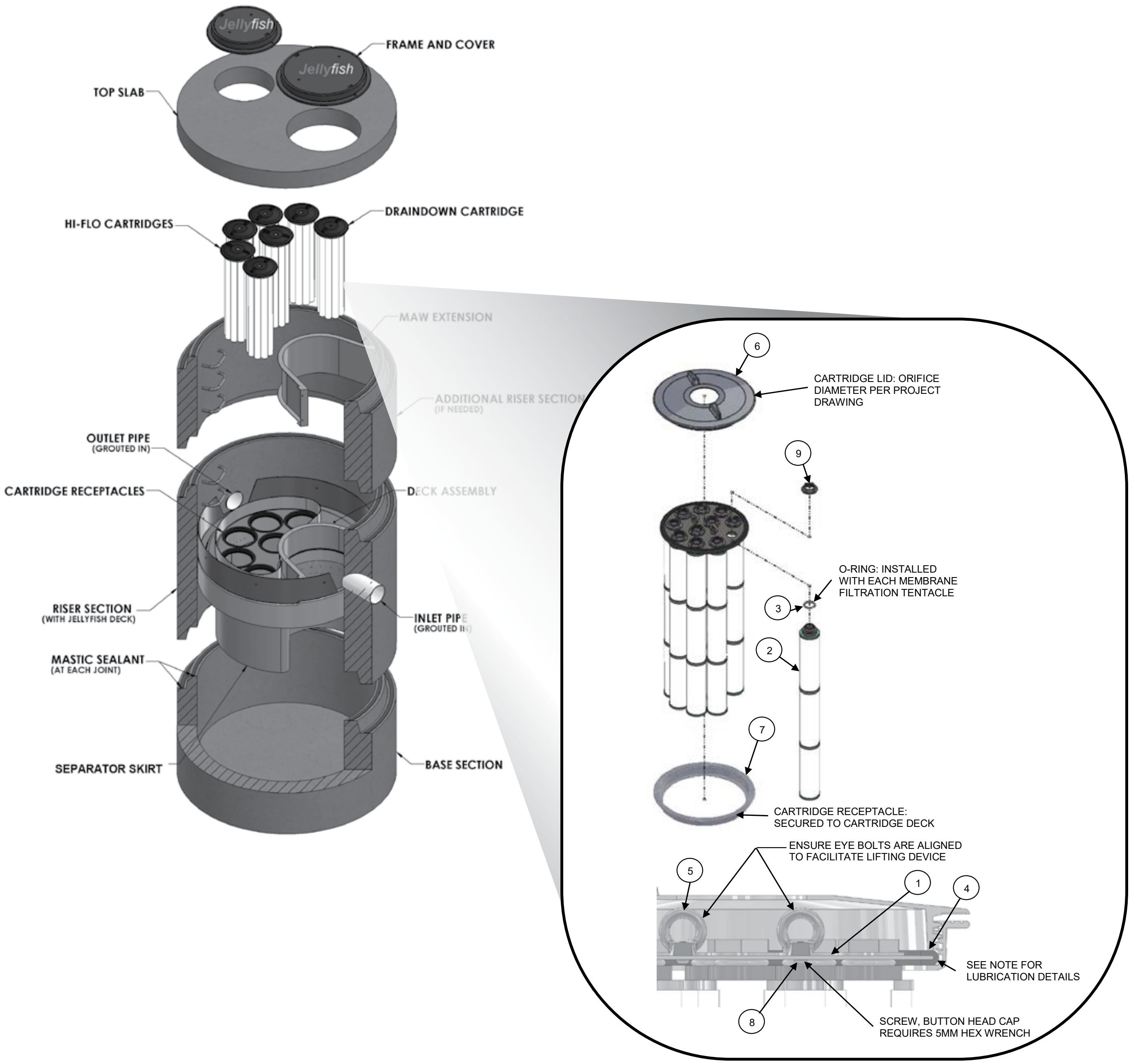


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lide (ITem 6). Follow Lubricant manufacturer’s instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner:				Jellyfish Model No:		
Location:				GPS Coordinates:		
Land Use:	Commercial:		Industrial:		Service Station:	
	Roadway/Highway:		Airport:		Residential:	

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed:						
Floatable Debris Present: (Y/N)						
Floatable Debris Removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Draindown Cartridges: (Y/N)						
Hi-Flo Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						

Jellyfish®

CONTECH
ENGINEERED SOLUTIONS

800.338.1122
www.ContechES.com

Support

- Drawings and specifications are available at www.conteches.com/jellyfish.
- Site-specific design support is available from Contech Engineered Solutions.
- Find a Certified Maintenance Provider at www.conteches.com/ccmp

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, wastewater treatment and earth stabilization products. For information on other Contech segment offerings, visit ContechES.com or call 800.338.1122

APPENDIX D

Underground Injection Control Project Report

Site Number: **100330336**

Project Number: **0036693**

Name and Address: **BUILDING 119 (SITE 36) 5B6**
PEASE AIR FORCE BASE
PORTSMOUTH

Mapit

Responsible Party: **BUILDING 119 (SITE 36) 5B6**
PORTSMOUTH

Wellhead Protection Area: **No**

Risk Level: **DW SUPPLY WITHIN 1000' OR SITE IN SWPA**

Assigned To: **REGISTRATION**

Discovery Date: **04/12/2016**

Eligibile:

Eligibilty Determined on:

MTBE: **N**

Brownfield: **N**

Activities (1)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
04/12/2016	UIC Application Received	LOCKER	04/26/2016	UIC Registration Issued	REGISTERED

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4601803	REGISTRATION	SITE #36 INJECTION REGISTRATION (5B6) ISSUED	04/26/2016	.08 MB

Underground Injection Control Project Report

Site Number:	**100330336**	Project Number:	**0036693**
Name and Address:	**BUILDING 119 (SITE 36) 5B6** **PEASE AIR FORCE BASE** **PORTSMOUTH**	Responsible Party:	**BUILDING 119 (SITE 36) 5B6** **PORTSMOUTH**
Mapit			
Wellhead Protection Area:	**No**	Risk Level:	**DW SUPPLY WITHIN 1000' OR SITE IN SWPA**
Assigned To:	**REGISTRATION**	Discovery Date:	**04/12/2016**
Eligibile:		Eligibilty Determined on:	
MTBE:	**N**	Brownfield:	**N**

No Vapor Recovery Information

Superfund Site Project Report

Site Number:	**100330336**	Project Number:	**0004283**
Name and Address:	**BUILDING 119 (SITE 36)** **PEASE AIR FORCE BASE** **PORTSMOUTH**	Responsible Party:	**U S AIR FORCE** **2261 HUGHES AVE, STE 155** **JBSA LACKLAND TX 78236-9853** **PHONE: 210-395-9420**
Mapit			
Wellhead Protection Area:	**Unknown**	Risk Level:	**DW SUPPLY WITHIN 1000' OR SITE IN SWPA**
Assigned To:	**SANDIN**	Discovery Date:	**05/14/1993**
Eligibile:		Eligibilty Determined on:	
MTBE:	**N**	Brownfield:	**N**

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
06/09/2022	Non-Permit GW Monitoring Result Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
5001486	REPORT TO DES	SITE 36 FALL 2021 SAMPLING EVENT DATA TRANSMITTAL 7-APR-2022	06/09/2022	5.00 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
10/19/2021	Additional Information Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4958065	REPORT TO DES	FINAL SS036 FAALL 2021 REMEDIAL ACTION-OPERATIONS FIELD WORK NOTIFICATION	10/19/2021	4.61 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
10/23/2020	Annual Report Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4884500	REPORT	DRAFT 2019 GROUNDWATER MONITORING REPORT	10/23/2020	5.00 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
01/22/2019	Additional Information Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4755436	REPORT TO DES	FINAL IN SITU CHEMICAL OXIDATION PILOT STUDY COMPLETION REPORT	01/22/2019	5.00 MB

Site Number:	100330336	Project Number:	0004283
Name and Address:	BUILDING 119 (SITE 36) PEASE AIR FORCE BASE PORTSMOUTH	Responsible Party:	U S AIR FORCE 2261 HUGHES AVE, STE 155 JBSA LACKLAND TX 78236-9853 PHONE: 210-395-9420
Mapit			
Wellhead Protection Area:	Unknown	Risk Level:	DW SUPPLY WITHIN 1000' OR SITE IN SWPA
Assigned To:	SANDIN	Discovery Date:	05/14/1993
Eligibile:		Eligibilty Determined on:	
MTBE:	N	Brownfield:	N

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
11/14/2018	Additional Information Received	SANDIN	12/14/2018	TECHNICAL INFORMATION PROVIDED	REPORT INCOMPLETE

Activity Documents (2)

	Document Type	Document Title	Document Date	File Size
4749416	CORRESPONDENCE	DES COMMENTS 12.14.18	12/14/2018	.08 MB
4746936	REPORT TO DES	DRAFT IN-SITU CHEMICAL OXIDATION PILOT STUDY COMPLETION REPORT	11/14/2018	5.00 MB

11/07/2018	Additional Information Received	OTHER	11/13/2018	No Action Necessary (Report filed)	WETLANDS VIOLATIONS CASE CLOSED

Activity Documents (2)

	Document Type	Document Title	Document Date	File Size
4747011	CORRESPONDENCE-FROM	WETLANDS CASE CLOSED	11/13/2018	.20 MB
4746460	REPORT TO DES	2018 WETLAND MONITORING REPORT	11/07/2018	2.90 MB

01/31/2018	Additional Information Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4696966	REPORT TO DES	FINAL IN SITU CHEMICAL OXIDATION PILOT STUDY	01/31/2018	5.00 MB

Site Number:	**100330336**	Project Number:	**0004283**
Name and Address: Mapit	**BUILDING 119 (SITE 36) PEASE AIR FORCE BASE PORTSMOUTH**	Responsible Party:	**U S AIR FORCE 2261 HUGHES AVE, STE 155 JBSA LACKLAND TX 78236-9853 PHONE: 210-395-9420**
Wellhead Protection Area:	**Unknown**	Risk Level:	**DW SUPPLY WITHIN 1000' OR SITE IN SWPA**
Assigned To:	**SANDIN**	Discovery Date:	**05/14/1993**
Eligibile:		Eligibilty Determined on:	
MTBE:	**N**	Brownfield:	**N**

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
01/30/2018	Additional Information Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4696071	REPORT TO DES	DRAFT IN SITU CHEMICAL OXIDATION PILOT STUDY IMPLEMENTATION REPORT	01/30/2018	5.00 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
12/20/2017	Additional Information Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4688637	REPORT TO DES	2017 WETLAND MONITORING REPORT	12/20/2017	5.00 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
08/24/2017	Additional Information Received	UNASSIGNED			
01/27/2017	Additional Information Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4640648	CORRESPONDENCE-TO	RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION	01/27/2017	1.20 MB

Superfund Site Project Report

Site Number:	**100330336**	Project Number:	**0004283**
Name and Address:	**BUILDING 119 (SITE 36)** **PEASE AIR FORCE BASE** **PORTSMOUTH**	Responsible Party:	**U S AIR FORCE** **2261 HUGHES AVE, STE 155** **JBSA LACKLAND TX 78236-9853** **PHONE: 210-395-9420**
Mapit			
Wellhead Protection Area:	**Unknown**	Risk Level:	**DW SUPPLY WITHIN 1000' OR SITE IN SWPA**
Assigned To:	**SANDIN**	Discovery Date:	**05/14/1993**
Eligibile:		Eligibilty Determined on:	
MTBE:	**N**	Brownfield:	**N**

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
12/21/2016	Additional Information Received	OTHER			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4635429	REPORT TO DES	2016 WETLAND MONITORING REPORT	12/21/2016	3.81 MB

11/15/2016	Additional Information Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4632437	REPORT TO DES	2015 ANNUAL REPORT	11/15/2016	5.00 MB

11/02/2016	Additional Information Received	OTHER	11/16/2016	TECHNICAL INFORMATION PROVIDED	RESTORATION PLAN APPROVED BY D. PRICE

Activity Documents (2)

	Document Type	Document Title	Document Date	File Size
4637567	CORRESPONDENCE	WETLANDS RESTORATION PLAN APPROVAL	11/16/2016	.22 MB
4630201	REPORT TO DES	WETLAND RESTORATION PLAN LEE STREET SITE 36	11/01/2016	5.00 MB

Site Number:	100330336	Project Number:	0004283
Name and Address:	BUILDING 119 (SITE 36) PEASE AIR FORCE BASE PORTSMOUTH	Responsible Party:	U S AIR FORCE 2261 HUGHES AVE, STE 155 JBSA LACKLAND TX 78236-9853 PHONE: 210-395-9420
Mapit			
Wellhead Protection Area:	Unknown	Risk Level:	DW SUPPLY WITHIN 1000' OR SITE IN SWPA
Assigned To:	SANDIN	Discovery Date:	05/14/1993
Eligibile:		Eligibilty Determined on:	
MTBE:	N	Brownfield:	N

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
10/27/2016	Additional Information Received	HILTON	11/04/2016	Not Approved	ISCO FAILURE NOT EVALUATED. DES DID NOT APPROVE ORIGINALLY, CANNOT CONCUR NOW

Activity Documents (2)

	Document Type	Document Title	Document Date	File Size
4630401	CORRESPONDENCE	DES COMMENTS 11.4.16 TO ISCO RESTART PLAN 10.27.16	11/04/2016	.08 MB
4629781	REPORT TO DES	IN SITU CHEMICAL OXIDATION (ISCO) INJECTIONS RESTART PLAN	10/27/2016	1.75 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
10/27/2016	Additional Information Received	OTHER	11/01/2016	No Action Necessary (Report filed)	WETLANDS BUREAU TO OVERSEE VIOLATIONS

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4629780	CORRESPONDENCE-TO	RESPONSE TO NHDES LRM REGARDING ISCO	10/25/2016	.13 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
08/10/2016	Additional Information Received	UNASSIGNED			

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4616481	REPORT TO DES	DRAFT LONG-TERM MONITORING PLAN REVISION 5	08/10/2016	5.00 MB

Site Number:	100330336	Project Number:	0004283
Name and Address:	BUILDING 119 (SITE 36) PEASE AIR FORCE BASE PORTSMOUTH	Responsible Party:	U S AIR FORCE 2261 HUGHES AVE, STE 155 JBSA LACKLAND TX 78236-9853 PHONE: 210-395-9420
Mapit			
Wellhead Protection Area:	Unknown	Risk Level:	DW SUPPLY WITHIN 1000' OR SITE IN SWPA
Assigned To:	SANDIN	Discovery Date:	05/14/1993
Eligibile:		Eligibilty Determined on:	
MTBE:	N	Brownfield:	N

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
07/27/2016	Additional Information Received	HILTON	09/14/2016	TECHNICAL INFORMATION PROVIDED	AF PROCEEDING WITHOUT REGULATOR CONCURRENCE. IMPLEMENTATION RESULTED IN WETLANDS VIOLATIONS

Activity Documents (2)

	Document Type	Document Title	Document Date	File Size
4624264	CORRESPONDENCE	DES EMAIL 9.22.16	09/22/2016	.07 MB
4614946	REPORT TO DES	FINAL ADDITIONAL INVESTIGATION AND PILOT STUDY WORK PLAN 01-JUL-2016	07/27/2016	5.00 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
06/09/2016	Additional Information Received	HILTON	06/30/2016	No Action Necessary (Report filed)	EPA TO ADDRESS

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4606629	CORRESPONDENCE-TO	RESPONSE TO COMMENTS (EPA) ON DRAFT SUPPLEMENTAL SITE INVEST STATUS REPORT 22-APR-2016	06/09/2016	.17 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
06/09/2016	Additional Information Received	HILTON	06/30/2016	Not Approved	SEE 6.30.16 PBC LETTER ATTACHED TO DRAFT PSWP

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4606630	CORRESPONDENCE-TO	RESPONSE TO COMMENTS ON THE DRAFT SUPPPLEMENTAL SITE INVESTIGATION STATUS REPORT 22-APR-2016	06/09/2016	.19 MB

Site Number:	**100330336**	Project Number:	**0004283**
Name and Address:	**BUILDING 119 (SITE 36)** **PEASE AIR FORCE BASE** **PORTSMOUTH**	Responsible Party:	**U S AIR FORCE** **2261 HUGHES AVE, STE 155** **JBSA LACKLAND TX 78236-9853** **PHONE: 210-395-9420**
Mapit			
Wellhead Protection Area:	**Unknown**	Risk Level:	**DW SUPPLY WITHIN 1000' OR SITE IN SWPA**
Assigned To:	**SANDIN**	Discovery Date:	**05/14/1993**
Eligibile:		Eligibilty Determined on:	
MTBE:	**N**	Brownfield:	**N**

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
06/09/2016	Work Plan Received	HILTON	06/30/2016	Not Approved	PREVIOUS COMMENTS UNRESOLVED, DES DOES NOT CONCUR WITH APPROACH AS PROPOSED. PROGRAM-WIDE LETTTER OF 6.30.16 APPLIES

Activity Documents (3)

	Document Type	Document Title	Document Date	File Size
4624250	CORRESPONDENCE	EMAIL TRANSMITING DES 6.30.16 LETTER	06/30/2016	.04 MB
4624249	CORRESPONDENCE	DES LETTER 6.30.16	06/30/2016	.04 MB
4606631	REPORT TO DES	DRAFT ADDITIONAL INVESTIGATION AND PILOT STUDY WORK PLAN 01-JUN-2016	06/09/2016	5.00 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
06/05/2015	Additional Information Received	UNASSIGNED			
01/27/2015	Additional Information Received	HILTON	03/31/2015	TECHNICAL INFORMATION PROVIDED	DES EMAIL DETAILING REPORT AND CONCEPTUAL SITE MODEL DEFICIENCIES

Activity Documents (2)

	Document Type	Document Title	Document Date	File Size
4541861	CORRESPONDENCE	DES EMAIL COMMENTS 3.31.15 TO 1.26.15 SSI STATUS REPORT	03/31/2015	.06 MB
4535965	REPORT TO DES	SUPPLEMENTAL SITE INVESTIGATION STATUS REPORT SITE 36 SS036 BUILDING 119 26-JAN-2015	01/27/2015	5.00 MB

Site Number:	**100330336**	Project Number:	**0004283**
Name and Address:	**BUILDING 119 (SITE 36)** **PEASE AIR FORCE BASE** **PORTSMOUTH**	Responsible Party:	**U S AIR FORCE** **2261 HUGHES AVE, STE 155** **JBSA LACKLAND TX 78236-9853** **PHONE: 210-395-9420**
Mapit			
Wellhead Protection Area:	**Unknown**	Risk Level:	**DW SUPPLY WITHIN 1000' OR SITE IN SWPA**
Assigned To:	**SANDIN**	Discovery Date:	**05/14/1993**
Eligibile:		Eligibilty Determined on:	
MTBE:	**N**	Brownfield:	**N**

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
02/10/2014	Additional Information Received	HILTON	10/02/2014	TECHNICAL INFORMATION PROVIDED	DES EMAIL COMMENTS TO SITE STATUS AND WORK THROUGH SUMMER 2014

Activity Documents (4)

	Document Type	Document Title	Document Date	File Size
4520591	CORRESPONDENCE	SITE 36 ADDITIONAL COMMENTS-CONCERNS	11/03/2014	.08 MB
4521795	CORRESPONDENCE	10-2-14 DES EMAIL	10/02/2014	.07 MB
4487323	CORRESPONDENCE	SITE 36 STATUS REPORT AND WORK PLAN; DES COMMENTS	03/17/2014	.05 MB
4484102	REPORT TO DES	STATUS REPORT AND SUPPLEMENTAL SITE INVESTIGATION WORK PLAN ADDENDUM 10-FEB-2014	02/10/2014	3.72 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
12/13/2012	Additional Information Received	HILTON	12/13/2012	TECHNICAL INFORMATION PROVIDED	S HILTON HELD CONF CALL WITH SHAW TO DISCUSS HYDROPUNCH DRILL & SAMPLE DEPTHS.

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4424839	CORRESPONDENCE-FROM	SITE 36 S HILTON DEC 13 2012 EMAIL TO SHAW ENV	12/13/2012	.03 MB

Site Number:	100330336	Project Number:	0004283
Name and Address:	BUILDING 119 (SITE 36) PEASE AIR FORCE BASE PORTSMOUTH	Responsible Party:	U S AIR FORCE 2261 HUGHES AVE, STE 155 JBSA LACKLAND TX 78236-9853 PHONE: 210-395-9420
Mapit			
Wellhead Protection Area:	Unknown	Risk Level:	DW SUPPLY WITHIN 1000' OR SITE IN SWPA
Assigned To:	SANDIN	Discovery Date:	05/14/1993
Eligibile:		Eligibilty Determined on:	
MTBE:	N	Brownfield:	N

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
11/09/2012	Additional Information Received	HILTON	12/13/2012	TECHNICAL INFORMATION PROVIDED	SEE DES TELE CONFERENCE E-MAIL DATED 13-DEC-2012

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4422065	REPORT TO DES	RESPONSE TO COMMENTS TABLE SUPPLEMENTAL SITE INVESTIGATION WORK PLAN 01-NOV-2012	11/09/2012	.14 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
11/09/2012	Additional Information Received	HILTON	12/13/2012	TECHNICAL INFORMATION PROVIDED	SEE DES TELE CONFERENCE E-MAIL 13 DEC 2012

Activity Documents (1)

	Document Type	Document Title	Document Date	File Size
4422064	REPORT TO DES	DRAFT FINAL SUPPLEMENTAL SITE INVESTIGATION WORK PLAN 01-NOV-2012	11/09/2012	2.48 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
08/03/2012	Additional Information Received	HILTON	09/13/2012	TECHNICAL INFORMATION PROVIDED	

Activity Documents (3)

	Document Type	Document Title	Document Date	File Size
4487465	CORRESPONDENCE	SITE 36 COMMENTS TO AUG 2012 DRAFT SOIL GW CONF SAM.	09/13/2012	.05 MB
4487464	CORRESPONDENCE	SITE 36 COVER TO COMMENTS SI WORK PLAN AUGUST 2012.	09/13/2012	.06 MB
4402604	REPORT TO DES	DRAFT SUPPLEMENTAL SITE INVESTIGATION WORK PLAN 01-AUG-2012	08/03/2012	1.43 MB

Superfund Site Project Report

Site Number:	100330336	Project Number:	0004283
Name and Address:	BUILDING 119 (SITE 36) PEASE AIR FORCE BASE PORTSMOUTH	Responsible Party:	U S AIR FORCE 2261 HUGHES AVE, STE 155 JBSA LACKLAND TX 78236-9853 PHONE: 210-395-9420
Mapit			
Wellhead Protection Area:	Unknown	Risk Level:	DW SUPPLY WITHIN 1000' OR SITE IN SWPA
Assigned To:	SANDIN	Discovery Date:	05/14/1993
Eligibile:		Eligibilty Determined on:	
MTBE:	N	Brownfield:	N

Activities (31)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
12/12/2011	Additional Information Received	UNASSIGNED			

Activity Documents (2)

	Document Type	Document Title	Document Date	File Size
4543394	CORRESPONDENCE	PEASE AFB; DES REVIEW OF WHITE PAPER FOR SITE 36	12/12/2011	.02 MB
4543395	CORRESPONDENCE	CDES REVIEW WHITE PAPER FOR SITE 36	12/12/2011	.02 MB

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
06/29/1993	Additional Information Received	SMITH	07/02/1993	Technical Report Approved	
04/07/1993	Additional Information Received	SMITH	05/14/1993	Comments to Waste Management Division	

Superfund Site Project Report

Site Number:	**100330336**	Project Number:	**0004283**
Name and Address:	**BUILDING 119 (SITE 36)** **PEASE AIR FORCE BASE** **PORTSMOUTH**	Responsible Party:	**U S AIR FORCE** **2261 HUGHES AVE, STE 155** **JBSA LACKLAND TX 78236-9853** **PHONE: 210-395-9420**
Mapit			
Wellhead Protection Area:	**Unknown**	Risk Level:	**DW SUPPLY WITHIN 1000' OR SITE IN SWPA**
Assigned To:	**SANDIN**	Discovery Date:	**05/14/1993**
Eligibile:		Eligibilty Determined on:	
MTBE:	**N**	Brownfield:	**N**

No Vapor Recovery Information

APPENDIX E

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

GENERAL CALCULATIONS - WQV and WQF (optional worksheet)

This worksheet may be useful when designing a BMP **that does not fit into one of the specific worksheets already provided** (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

10.55	ac	A = Area draining to the practice
7.99	ac	A_I = Impervious area draining to the practice
0.76	decimal	I = Percent impervious area draining to the practice, in decimal form
0.73	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
7.72	ac-in	WQV= 1" x Rv x A
28,031	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = Amount of rainfall. For WQF in NH, P = 1".
0.73	inches	Q = Water quality depth. Q = WQV/A
97	unitless	CN = Unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P] $^{0.5}$)
0.3	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.055	inches	Ia = Initial abstraction. Ia = 0.2S
5.0	minutes	T_c = Time of Concentration
600.0	cfs/mi^2/in	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
7.239	cfs	WQF = q_u x WQV. Conversion: to convert "cfs/mi^2/in * ac-in" to "cfs" multiply by 1mi^2/640ac.

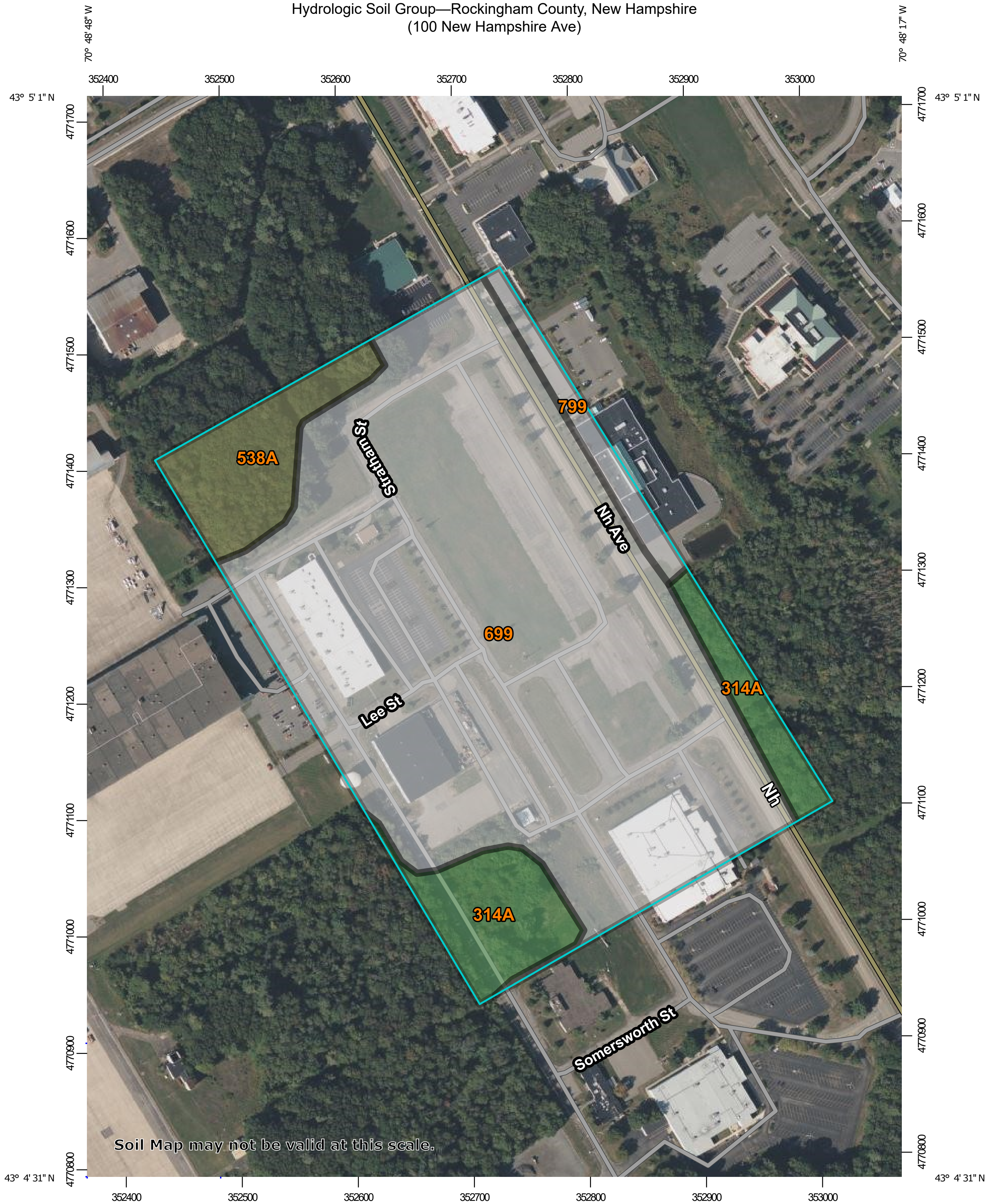
Designer's Notes:

This calculation represents the treatment train directed to Contech Jellyfish Treatment Unit.

Full Treatment in compliance with Env-Wq 1508.10 shall be achieved by use of a proprietary flow-through device. The proposed Contech Jellyfish Treatment Unit - Model#: JFPD0816 will be used to treat the WQF as calculated in the above spreadsheet. The specified device is designed to treat up to 7.84 cfs of flow.

APPENDIX F

Hydrologic Soil Group—Rockingham County, New Hampshire
(100 New Hampshire Ave)



Map Scale: 1:4,520 if printed on A portrait (8.5" x 11") sheet.

N

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 24, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
314A	Pipestone sand, 0 to 5 percent slopes	A/D	4.7	10.0%
538A	Squamscott fine sandy loam, 0 to 5 percent slopes	C/D	3.4	7.4%
699	Urban land		36.8	79.3%
799	Urban land-Canton complex, 3 to 15 percent slopes		1.5	3.3%
Totals for Area of Interest			**46.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

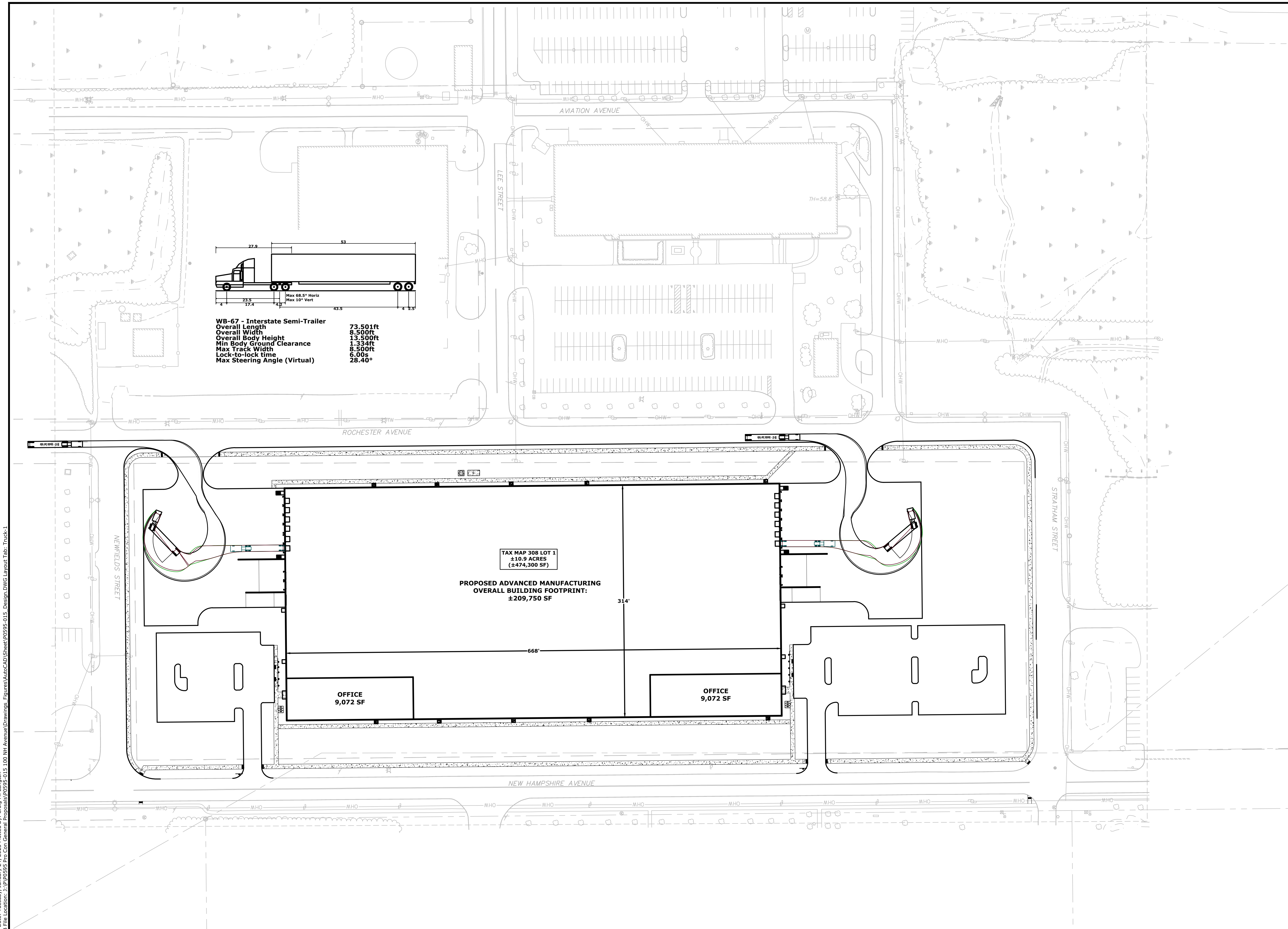
The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.



Tighe&Bond

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

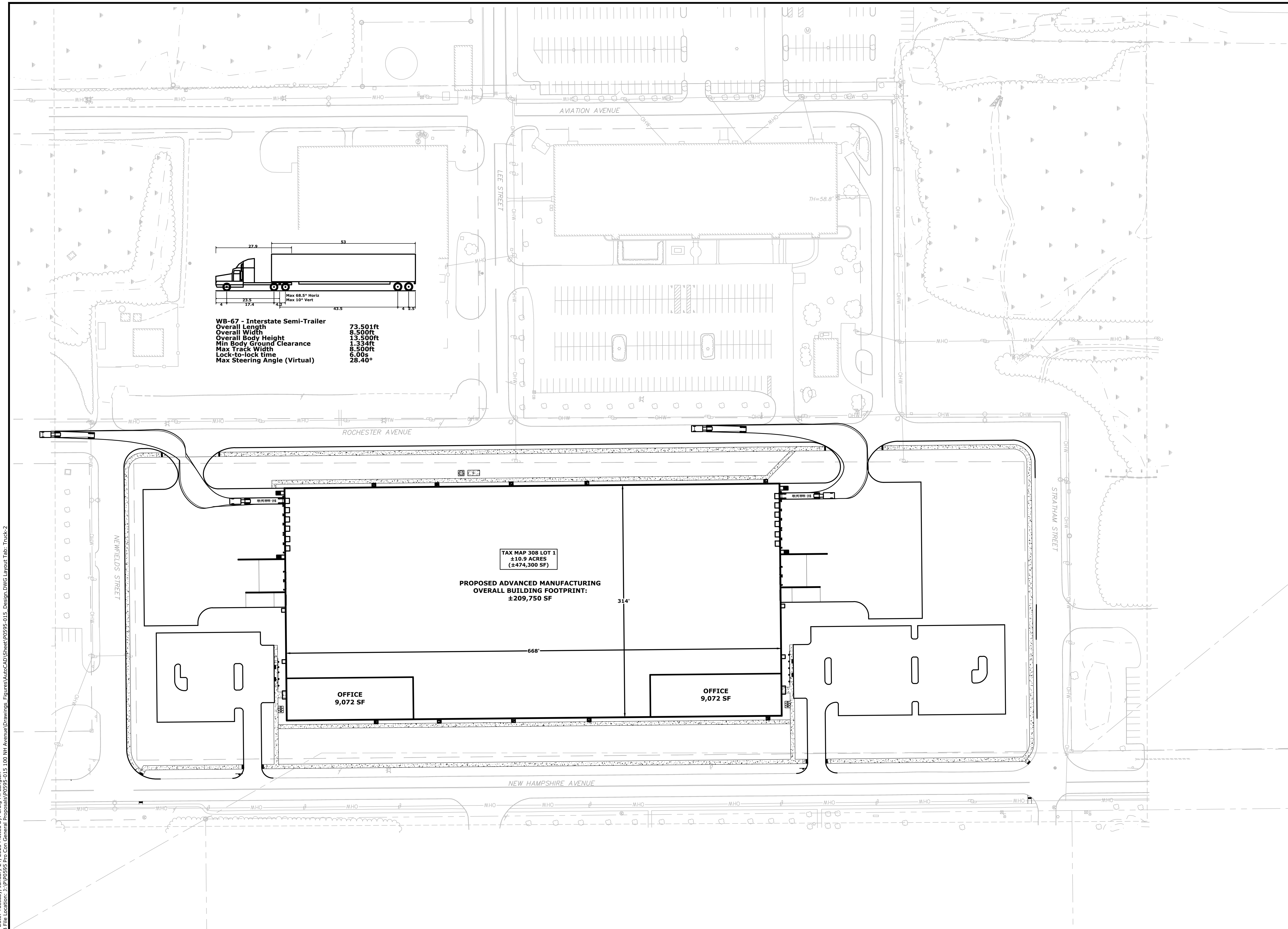
PROJECT NO:	P0595-015
DATE:	12/19/2022
FILE:	P0595-015_DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

WB-67 TRUCK ENTERING TURNING EXHIBIT

SCALE: AS SHOWN

1 OF 2

Last Save Date: January 24, 2023 4:37 PM By: CML
Plot Date: Tuesday, January 24, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: Truck-1



Tighe&Bond

SCALE IN FEET

0 60' 120'

GRAPHIC SCALE

Proposed Advanced Manufacturing Facility

Aviation Avenue Group, LLC

100 New Hampshire Avenue
Portsmouth, NH

MARK	DATE	DESCRIPTION
B	1/25/2023	TAC Resubmission
A	12/19/2022	TAC Submission

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WB-67 TRUCK EXITING
TURNING EXHIBIT

SCALE: AS SHOWN

Last Save Date: January 24, 2023 4:37 PM By: CML
Plot Date: Tuesday, January 24, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Drawings_Figures\AutoCAD\Sheet\P0595-015_Design.DWG Layout Tab: Truck-2

December 1st, 2022

Craig Langton, PE
Project Engineer
Tighe & Bond
177 Corporate Drive Portsmouth, NH

Natural Gas to 100 New Hampshire Ave - Portsmouth, NH

Hi Craig,

Unitil/Northern Utilities Natural Gas Division has reviewed the requested site for natural gas service:

Unitil hereby confirms that natural gas is available for the proposed building at 100 New Hampshire Ave - Portsmouth, NH.

If you have any questions, please contact me at 603-534-2379.

Sincerely,

Dave MacLean
Senior Business Development Rep
Unitil

T 603.294.5261
M 603.534.2379
F 603.294.5264
Email macleand@unitil.com

Craig M. Langton

From: MacLean, David <macleand@unitil.com>
Sent: Thursday, January 5, 2023 1:54 PM
To: Craig M. Langton; Olson, Jeffery; Beaulieu, David
Cc: Kickham, Charlie; Kenny, Gary
Subject: RE: 100 New Hampshire Ave - Portsmouth, NH (Pease)

[Caution - External Sender]

Hi Craig,

This location has high pressure gas on several sides of the property- I stopped in to gas engineering and they agree you are in a great place for gas. The service location looks good. Once you have an estimated gas load please let me know and I will have engineering run an analysis and size your service.

Dave

Dave MacLean
Senior Business Development Rep

Unitil

325 West Rd
Portsmouth, NH 03801
T 603.294.5261
M 603.534.2379
F 603.294.5264
Email macleand@unitil.com
www.unitil.com

From: Craig M. Langton <CMLangton@tigheBond.com>
Sent: Thursday, January 5, 2023 12:48 PM
To: Olson, Jeffery <olsonj@unitil.com>; Beaulieu, David <beaulieu@unitil.com>
Cc: MacLean, David <macleand@unitil.com>; Kickham, Charlie <kickham@unitil.com>; Kenny, Gary <kennyg@unitil.com>
Subject: RE: 100 New Hampshire Ave - Portsmouth, NH (Pease)

Jeff / David,

We are going through the local permitting process for this project now there was a comment that the City brought ups and wanted us to confirm with you, is the status of the existing gas mains around the site and if any upgrades would be required. As you will see on the attached draft utilities plan for the site we are proposing to tap into the main as it crosses Lee street. Is this an acceptable place to tap into the gas main?

Thanks,
Craig

Craig Langton, PE
Project Engineer

Tighe&Bond

o. 603.433.8818 | d. 603.294.9231

177 Corporate Drive, Portsmouth, NH, 03801
w: tighebond.com | halvorsondesign.com

From: Olson, Jeffery <olsonj@unitil.com>
Sent: Friday, October 14, 2022 5:58 PM
To: Craig M. Langton <CMLangton@tigheBond.com>
Cc: Beaulieu, David <beaulieu@unitil.com>; Neil A. Hansen <NAHansen@tighebond.com>; MacLean, David <macleand@unitil.com>; Kickham, Charlie <kickham@unitil.com>; Kenny, Gary <kennyg@unitil.com>
Subject: RE: 100 New Hampshire Ave - Portsmouth, NH (Pease)

[Caution - External Sender]

Craig,

As requested in your correspondence, we have reviewed the location of our gas mains in the subject project area. Please be advised that any information provided in this response referencing the location of Unitil gas mains and any attributes describing these facilities in the subject project area is to be considered SUE-LEVEL D data – "REFERENCE ONLY" if used to help facilitate graphic representation on your project plans.

Attached to this email is a pdf showing Unitil owned gas mains around 100 New Hampshire Ave. In your project area pdf, the highlighted gas pipe that your survey found turned is most likely an abandoned service line to the building formerly stadning on the 100 New Hampshire Ave property. That being said, a digsafe ticket is still the best method to determine exact locations of active gas pipes before any construction.

It is understood between Unitil Corp. and any other parties who may be provided these map drawings, that this information is "reference only" and that prior to any construction commencing on this project appropriate DigSafe ticket must be executed.

Let me know if you need anything else or have any questions.

Thanks,

Jeff Olson, GISP
GIS Analyst

Unitil

30 Energy Way
Exeter, NH 03833
T 603.379.3837

these files, and assumes no responsibility or liability for their accuracy or completeness, or for any changes made to them. If you have received this e-mail in error, please reply to the sender so that we may redirect this information.

From: Craig M. Langton [mailto:CMLangton@tigheBond.com]
Sent: Wednesday, October 5, 2022 10:18 AM
To: MacLean, David <macleand@unitil.com>
Cc: Beaulieu, David <beaulieu@unitil.com>; Neil A. Hansen <NAHansen@tighebond.com>
Subject: 100 New Hampshire Ave - Portsmouth, NH (Pease)

Your attachments have been security checked by Mimecast Attachment Protection. Files where no threat or malware was detected are attached.

David,

We are working on a potential development on the Pease Tradeport at a site on the corner of Rochester Ave, Stratham St, and New Hampshire Ave. We have survey for the site, but as you'll see in the attached gas was only picked up in one location around the site. I was hoping you could provide us with any GIS or other information you have for gas service in the area se we can include in our conceptual design plans?

Thanks,
Craig

Craig Langton, PE
Project Engineer

Tighe&Bond

o. 603.433.8818 | d. 603.294.9231

177 Corporate Drive, Portsmouth, NH, 03801
w: tighebond.com | halvorsondesign.com

P0595-015
February 23, 2023

Allison Rees, PE
Underwood Engineers
25 Vaughan Mall
Portsmouth, NH, 03801

Re: **Proposed Advanced Manufacturing Facility**
80 Rochester Avenue (100 New Hampshire Avenue)

Dear Client:

On behalf of Aviation Avenue Group, LLC we are pleased to submit an electronic copy of the following revised information in support of a Pease Development Authority (PDA) Site Plan Review and Subdivision for the above referenced project in response to your Drainage Review Memorandum dated February 14, 2023:

- Site Plan Set, last revised February 23, 2023;
- Drainage Analysis, last revised February 23, 2023

The following provides responses (in **bold**) to the Drainage Review Memorandum:

Drainage Analysis

16. Please elaborate further on the concern about pressurizing the underground drainage system.

    The need for new 48" pipes is unclear. Pre- vs Post- being satisfied, the existing drainage functions with 36" maximum pipes on site, why are 48" pipes proposed post-treatment? Does the existing system demonstrate difficulties with conveying Q's in excess of 65+ CFS during large storm events?

    To prevent pressurizing the overflow outlet pipe from the 60" HDPE underground detention system in larger storm events the outlet pipe was designed to be 48-inches so that in the 100-year storm event the peak elevation is not above the top of the 48" outlet pipe.

    Upon further review of the drainage design it was determined a 36" outlet pipe from the underground detention system is adequate. The plans and drainage analysis have been revised accordingly.

If you have any questions or need any additional information, please contact Patrick Crimmins or Neil Hansen by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com / nahansen@tighebond.com.

Sincerely,
TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Vice President

Neil A. Hansen, PE
Project Manager

Copy: Aviation Avenue Group, LLC (via email)
Pease Development Authority (via email)
City of Portsmouth Planning Department (via email)

J:\P\P0595 Pro Con General Proposals\P0595-015 100 NH Avenue\Report_Evaluation\Drainage Report\Underwood - Comment Response-2.docx

25 Vaughan Mall
Portsmouth, NH, 03801-4012
Tel: 603-436-6192 Fax: 603-431-4733

Drainage Review Memorandum

To: Peter Stith, Principal Planner, City of Portsmouth
cc: Patrick Crimmins, P.E., Neil Hansen, P.E. Tighe & Bond

From: Allison Rees, P.E., Robert Saunders, P.E., Matthew Hall
Date: January 31, 2023
Re: Aviation Manufacturing Facility / 100 New Hampshire Avenue
Portsmouth, NH

Background/Purpose:

The City of Portsmouth requested a peer review of the Drainage Study/Drainage Design for the referenced project. Underwood Engineers (UE) received plans and a drainage report dated December 19, 2022, prepared by Tighe & Bond Engineers, Portsmouth, NH. The following comments are provided for consideration.

Findings and Recommendations:

Site Development Plans

DWG C-103

1. Insulation (Rigid) should be considered for the design, and notes and details added accordingly, particularly at crossings with other utilities, e.g. water, sewer.
2. There appear to be conflicts between the utility information obtained via survey and Portsmouth GIS. Some of the conflicts have the potential to create conflicts in the design and should be resolved as part of the design.
    a. GIS-based utilities and their linetypes should be added to the legend, e.g XD for drainage.
    b. For example, DMH 2145 does not display (XD) inverts of connecting pipes nor does CB 1895 depict the invert of the XD drain line.

DWG C103.1 and C103.2:

3. Show the proposed water lines and the approximate inverts where they will cross the drain line.
4. The two trash compactors are in areas graded toward the drainage system. Will (dedicated) containment catchbasins be positioned to take run-off from the immediate vicinity of the compactor area?

5. POS-01 is 84” in diameter according to its detail, PDMH-13, PDMH-16 and PDMH-17 are all depicted as the same size in plan, however 2 out of the 3 are labelled as 8’ diameter. Please confirm the proposed structure dimensions.
6. Existing structures to be cored for new connections should be reviewed to ensure that new pipes can be added as shown without compromising the overall structural capacity of the unit. e.g. CB 1838.
7. Proposed 12” pipe connecting PCB 18 and PDMH18 is shown crossing the existing (XD) drain referenced in comment 2b above and appears likely to result in conflict.
8. Regarding CB 1838:
    a. The outlet pipe appears to go easterly from the structure without a known connection to the existing or proposed system.
    b. A dark line is portrayed on the plan extending northwesterly from CB1838, it is unclear what the line is intended to portray.
9. Existing DMH 1925:
    a. Confirm and label the structure diameter and confirm the diameter of the structure is sufficient to accommodate the existing and proposed (increase) in pipe size(s).
    b. Confirm the condition and integrity of the structure is acceptable.

Landscaping Plans:

10. Proposed trees are shown directly over a drain line and a catch basin in the northerly parking lot. These trees should be moved.
11. There are trees shown over the underground detention basin in the southern parking lot. Confirm the roots of the trees will not interfere with the underground drainage system.

Detail Sheet C-504

12. The Header Row in the Underground Detention System detail should clarify it is a section cut through the length of the pipe for clarity.

Drainage Analysis

13. The introduction should clarify that only 1-inch of runoff will be treated.
14. The mitigation description indicates the jellyfish unit is designed to capture the 1-inch storm event only, and anything greater is untreated and bypassed. Please clarify how the 1-inch storm equates to a design year storm.
15. The Pre- and Post- areas should be revised to include the area draining to PA-1. The area draining to the existing closed drainage system along Rochester Avenue should be excluded. The Post- area should include that associated with PCB-18.
16. The need for new 48” pipes is unclear. Pre- vs Post- being satisfied, the existing drainage functions with 36” maximum pipes on site, why are 48” pipes proposed post-treatment? Does the existing system demonstrate difficulties with conveying Q’s in excess of 65+ CFS during large storm events?
17. Modify Subcatchment Post 1.0 to include 42” pipe between PDMH-08 and PDMH-09.

18. While the City of Portsmouth regulations require the applicate to demonstrate there is sufficient off-site downstream system capacity, it is not required by the PDA so no pipe sizing calculations are required. Have there been any reports of issues with capacity or clogging? Is the condition of the outfall pipe acceptable?
19. Will footing drains be connected to the system? If so, please provide ESHWT information.
20. The City of Portsmouth regulations require removal of 50% of the Total Nitrogen. Nitrogen loading will be evaluated as part of the PTAP submission.
21. The project should design the drainage system for the proposed future parking spaces. Please update the impervious areas for all future proposed impervious in the post- calculations.

Other/General

22. PTAP Database: This project requires registration with the PTAP Database, the Applicant is requested to enter project related stormwater tracking information contained in the site plan application documents using the Great Bay Pollution Tracking and Accounting Program (PTAP) database (www.unh.edu/unhsc/ptapp) and submit the information with the resubmitted response to comments.

Follow-up:

Questions and comments concerning this review can be directed to either Allison Rees or Robert Saunders.

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

February 21, 2023

Peter Britz, Planning Director
City of Portsmouth
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Application for Site Plan Review
Reis Farm
Assessor's Map 255, Lot 5
305 Peverly Hill Road
Altus Project No. 5411

Dear Peter,

On behalf of the Applicant, Thomas E., Marybeth B., James B. and Meegan C. Reis, Altus Engineering, respectfully submits an application for the addition of two new dwelling units located at 305 Peverly Hill Road. This project entails the reconstruction of a portion of an existing structure into a new attached dwelling and the construction of a new detached single-family home together with associated site improvements. As I am sure you are aware, the Zoning Board of Adjustment granted two variances for this property on January 24, 2023 to allow the project to move forward as described above.

Please call me if you have any questions or need any additional information.

Sincerely,

ALTUS ENGINEERING

EB:S

Erik B. Saari
Vice President

ebs/5411-APP-PB-CovLtr-022123

Enclosures

eCopy: Jim Reis

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

February 21, 2023

Peter Britz, Planning Director
City of Portsmouth
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Waiver Requests
Reis Farm
Assessor's Map 255, Lot 5
305 Peverly Hill Road
Altus Project No. 5411

Dear Peter,

On behalf of the Applicant, Thomas E., Marybeth B., James B. and Meegan C. Reis, Altus Engineering, we respectfully ask that the following waivers be considered for the above refenced project:

2.5.4.3J - Outdoor Lighting

Given that this is a private residential/agricultural project and not a formalized site plan like a retail establishment with a large parking lot, the requirement for an analysis of outdoor lighting is unnecessary. The only new lighting will be associated with the two new dwellings and will be limited to typical wall sconces and the like. No large-scale light fixtures that one would find on a commercial site are planned to be installed. Therefore, a photometric plan would be excessive.

10.1 - Dark Sky Lighting Measures

Similar to above, the only new lights that will be installed on the site will be limited to residential-scale fixtures incapable of causing the level of glare that this section of the ordinance is attempting to limit. As no light poles or other commercial-grade fixtures are intended, application of this standard is impractical.

2.5.4.3K – Landscaping

This is a private residential/agricultural property, not a commercial site where a formalized landscaping plan would be desirable. As it is obvious that the Reis family have been and will continue to be good stewards of the land, we have no doubt that they will implement their own tasteful landscaping regimen that fits the property and its use. Because of this, a landscape plan is unnecessary.

7.4 - Stormwater Management Plan

No new drainage structures and only 1,846 sf of new impervious surface is proposed as part of this project, none of which is roadway or parking lot. This minimizes the need for stormwater detention and treatment, particularly where any potential increase in runoff or erosion will be mitigated by the inclusion of stone drip edges at the new roof edges. In light of this, a stormwater management plan would be an excessive burden on the Applicant.

7.6.5 - Inspection and Maintenance Plan

As stated above, there are no drainage structures included in this proposal. This makes an inspection and maintenance plan irrelevant as there will be nothing to inspect or maintain.

Please call me if you have any questions or need any additional information.

Sincerely,

ALTUS ENGINEERING

Erik B. Saari
Vice President

ebs/5411.03-WaiverReq-022123

Enclosures

eCopy: Jim Reis

ALTUS
ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

"Green" Statement
Assessor's Map 255 Lot 5
Reis Farm
305 Peverly Hill Road
Altus Project 5411

Pursuant to Section 2.5.3.1(a) of the Site Plan Review Regulations, Altus Engineering respectfully submits the following list of the project's "green" components for the addition of two dwelling units at 305 Peverly Road:

- All new construction will meet or exceed all applicable current energy codes.
- The addition of these dwelling units allows for the continued use of the site as a working farm.
- Stone drip edges will be employed for new structures to reduce erosion and promote groundwater recharge.

ebs/5411-APP-PB-GreenStatement-022123

Tel: (603) 433-2335 E-mail: Altus@altus-eng.com

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

February 21, 2023

Peter Britz, Planning Director
City of Portsmouth
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Traffic Memorandum
Reis Farm
Assessor's Map 255, Lot 5
305 Peverly Hill Road
Altus Project No. 5411

Dear Peter,

Pursuant to the requirements of section 3.2.1-2 of the Portsmouth Site Plan Review Regulations, we have undertaken a basic study of the potential traffic impacts resultant of the proposed addition of two dwelling units to the Reis Farm on Peverly Hill Road. following assessment is based on *Trip Generation,* 11th edition, prepared by the Institute of Transportation Engineers (ITE). We have defaulted to the AM and PM peak hour of generator versus the peak hour of adjacent street traffic as this resulted in a slightly higher number of trip ends.

As shown below, the site can be expected to generate the following traffic volumes during a typical Peak Hour:

<u>ITE Land Use Code: 210 (Single-Family Detached Housing)</u>

Weekday (Entire Day)
Trip ends per Dwelling Unit: 9.43
(3 units) 9.43 = 28.29 trips rounded down to **28** (50% entering [14], 50% exiting [14])

Weekday (AM Peak Hour of Generator)
Trip ends per Dwelling Unit: 0.75
(3 units) 0.75 = 2.25 trips rounded down to **2** (30% entering [1], 70% exiting [1])

Weekday (PM Peak Hour of Generator)
Trip ends per Dwelling Unit: 0.99
(3 units) 0.99 = 2.97 trips rounded up to **3** (66% entering [2], 34% exiting [1])

Saturday (Entire Day)
Trip ends per Dwelling Unit: 9.48
(3 units) 9.48 = 28.44 trips rounded down to **28** (50% entering [14], 50% exiting [14])

Saturday (Peak Hour of Generator)
Trip ends per Dwelling Unit: 0.92
(3 units) 0.92 = 2.76 rips rounded up to **3** (54% entering [2], 46% exiting [1])

Sunday (Entire Day)
Trip ends per Dwelling Unit: 8.48
(3 units) 8.48 = 25.44 trips rounded down to **25** (50% entering [13], 50% exiting [12])

Sunday (Peak Hour of Generator)
Trip ends per Dwelling Unit: 0.83
(3 units) 0.83 = 2.49 trips rounded down to **2** (50% entering [1], 50% exiting [1])

Per the above analysis, we calculated that the proposed residences can be expected to generate a maximum of 28 trip ends on a Saturday with similar volume on weekdays. Maximum daily peaks are shown to be only three cars in the PM hour which equates to one car every twenty minutes. Based on this information, we conclude that this project will have a minimal impact on traffic in the vicinity of the site.

Please call me if you have any questions or need any additional information.

Sincerely,

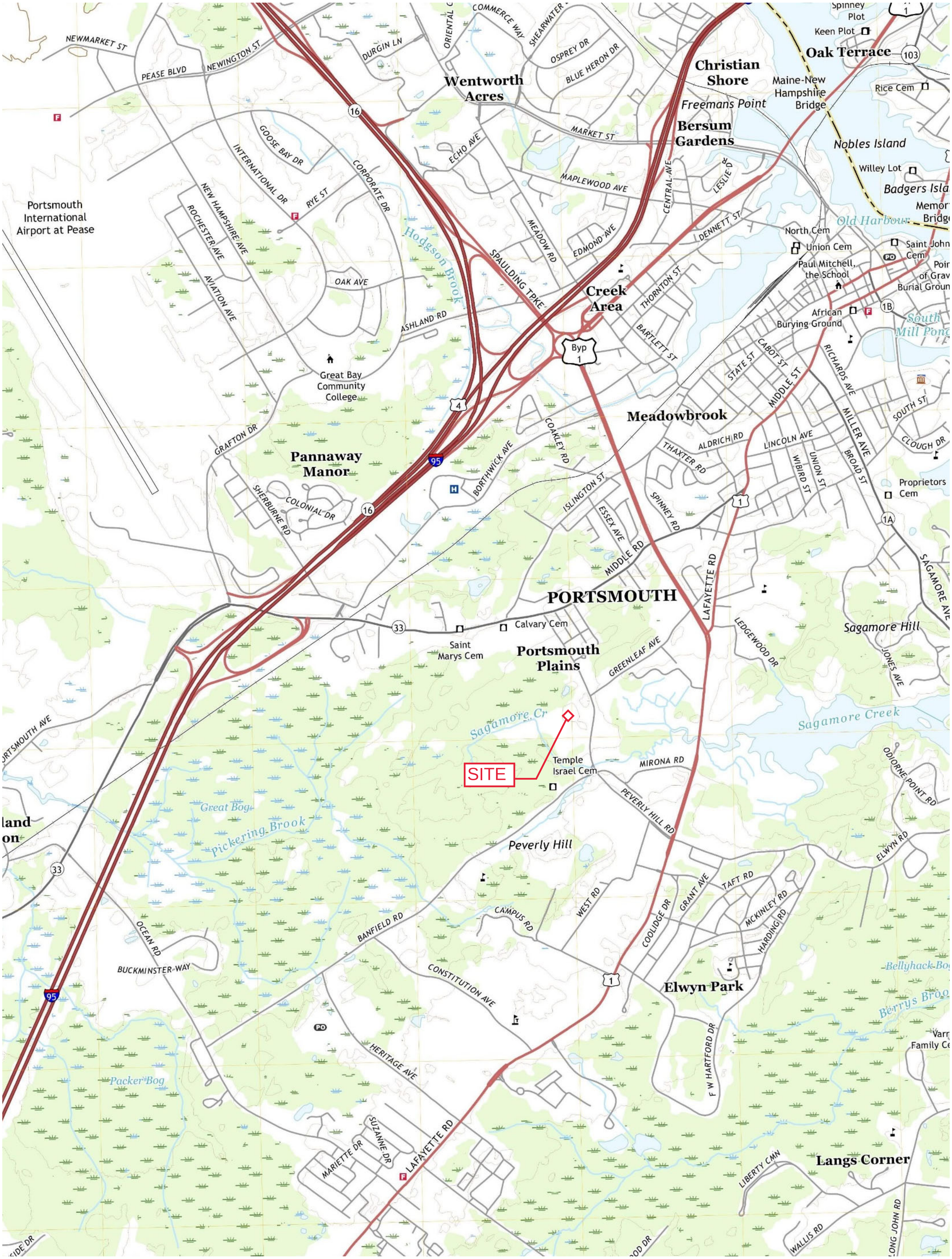
ALTUS ENGINEERING, INC.

Erik B. Saari
Vice President

ebs/5411-Traffic

Abutters List - 305 Peverly Hill Road

Property ID	Site Address	Account	Owner Name	Owner Name 2	Owner Address	City	State	Zip
0242-0004-0000	83 PEVERLY HILL RD	30759	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0243-0008-0000	433 GREENLEAF AVE	30761	FLEMING DONNA	FLEMING SAROJ A	433 GREENLEAF AVE	PORTSMOUTH	NH	03801
0243-0009-0000	423 PEVERLY HILL RD	30762	LIEN HSIU Y	CHOE HYON S	423 PEVERLY HILL RD	PORTSMOUTH	NH	03801
0243-0010-0000	437 PEVERLY HILL RD	30763	GALARNEAU THOMAS M	GALARNEAU JESSICA A	437 PEVERLY HILL RD	PORTSMOUTH	NH	03801
0243-0011-0000	451 PEVERLY HILL RD	30764	LEONARD STEVEN P		451 PEVERLY HILL RD	PORTSMOUTH	NH	03801
0243-0012-0000	465 PEVERLY HILL RD	30765	SHORTILL KUMIKO ANEE		465 PEVERLY HILL RD	PORTSMOUTH	NH	03801
0243-0058-0000	300 PEVERLY HILL RD	30805	SCHWARTZ JACOB H	DAVIS KRISTEN N	300 PEVERLY HILL RD	PORTSMOUTH	NH	03801
0243-0059-0000	384 PEVERLY HILL RD	30806	FINBERG STEPHEN J REV TR	FINBERG MELISSA A REV TR	384 PEVERLY HILL ROAD	PORTSMOUTH	NH	03801
0255-0006-0000	303 PEVERLY HILL RD	31176	STEVENS BOYD J	STEVENS RHONDA H	303 PEVERLY HILL RD	PORTSMOUTH	NH	03801
0255-0008-0000	293 PEVERLY HILL RD	31178	MERRIMACK VALLEY HOMES INC		1794 BRIDGE ST UNIT 6	DRACUT	MA	01826
0256-0003-0000	PEVERLY HILL RD	31181	GARRETT SHIRLEY N REVOC TRUST 200(	GARRETT SHIRLEY N TRUSTEE	BARBERRY LANE	PORTSMOUTH	NH	03801
0244-0009-0000	535 PEVERLY HILL RD	35655	535 PEVERLY HILL LLC		6 SHEARWATER ST	DURHAM	NH	03824
0255-0003-0000	PEVERLY HILL RD	35721	HETT WALTER D TRUST	HETT WALTER D TRUSTEE	2 VICTORIA CT APT 104	YORK	ME	03909
0256-0001-0000	BANFIELD RD	35722	SWIFT WATER GIRL SCOUT COUNCIL		ONE COMMERCE DR	BEDFORD	NH	03110
0242-0004-0001-0000	18 SAGE LN	54584	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0002	24 SAGE LN	54585	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0003	32 SAGE LN	54586	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0004	40 SAGE LN	54587	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0005	46 SAGE LN	54588	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0006	54 SAGE LN	54589	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0007	58 SAGE LN	54590	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0008	68 SAGE LN	54591	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0009	74 SAGE LN	54592	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0010	84 SAGE LN	54593	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0011	88 SAGE LN	54594	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0012	98 SAGE LN	54595	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0013	102 SAGE LN	54596	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0014	112 SAGE LN	54597	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0015	118 SAGE LN	54598	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0016	126 SAGE LN	54599	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0017	130 SAGE LN	54600	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0018	140 SAGE LN	54601	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0019	144 SAGE LN	54602	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0020	150 SAGE LN	54603	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0021	154 SAGE LN	54604	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0022	180 SAGE LN	54605	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0023	188 SAGE LN	54606	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0024	190 SAGE LN	54607	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0025	198 SAGE LN	54608	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0026	202 SAGE LN	54609	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0027	210 SAGE LN	54610	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0028	216 SAGE LN	54611	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0029	226 SAGE LN	54612	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0030	230 SAGE LN	54613	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0031	240 SAGE LN	54614	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0032	244 SAGE LN	54615	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0033	270 SAGE LN	54616	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0242-0004-0034	274 SAGE LN	54617	PARSON WOODS INVESTMENTS LLC		11 LAFAYETTE RD	NORTH HAMPTON	NH	03862
0255-0008-0001	293 PEVERLY HILL RD #1	53924	GOMEZ REBECCA E		293 PEVERLY HILL RD #1	PORTSMOUTH	NH	03801
0255-0008-0002	293 PEVERLY HILL RD #2	53925	GOLDBERG BENJAMIN		293 PEVERLY HILL RD #2	PORTSMOUTH	NH	03801
0255-0008-0003	293 PEVERLY HILL RD #3	53926	CAPELLINI FRANCESCA		293 PEVERLY HILL RD UNIT 3	PORTSMOUTH	NH	03801
0255-0008-0004	293 PEVERLY HILL RD #4	53927	TRANCHEMONTAGNE SCOTT A	BRAUNIG LISA A	293 PEVERLY HILL RD	PORTSMOUTH	NH	03801
0255-0008-0005	293 PEVERLY HILL RD #5	53928	GOUCHER COLE R		9 FALKLAND PL UNIT A1	PORTSMOUTH	NH	03801
0255-0008-0006	293 PEVERLY HILL RD #6	53929	GRIFFIN FAMILY REV TST OF 2021	GRIFFIN KYLE P & LYNN M TTEE	293 PEVERLY HILL RD #6	PORTSMOUTH	NH	03801
0255-0008-0007	293 PEVERLY HILL RD #7	53930	HESTER NOAH	DEBELLIS JESSICA	293 PEVERLY HILL RD #7	PORTSMOUTH	NH	03801
0255-0008-0008	293 PEVERLY HILL RD #8	53931	TAGGART SUSAN M 2014 TRUST	TAGGART SUSAN M TRUSTEE	293 PEVERLY HILL RD #8	PORTSMOUTH	NH	03801
0255-0008-0009	293 PEVERLY HILL RD #9	53932	WALSH RYAN A		293 PEVERLY HILL RD #9	PORTSMOUTH	NH	03801
0255-0005-0000	305 PEVERLY HILL RD		CITY OF PORTSMOUTH	(CONSERVATION EASEMENT)	1 JENKINS AVE	PORTSMOUTH	NH	03801



SITE
PORTSMOUTH
Portsmouth Plains
Temple Israel Cem
Sagamore Cr
Sagamore Creek
Peverly Hill
Pannaway Manor
Meadowbrook
Creek Area
Christian Shore
Wentworth Acres
Bersum Gardens
Oak Terrace
Freemans Point
Nobles Island
Elwyn Park
Langs Corner
Sagamore Hill
Portsmouth International Airport at Pease
Great Bay Community College
Calvary Cem
Saint Marys Cem
Great Bog
Pickering Brook
Packer Bog
Hodgson Brook
Maine-New Hampshire Bridge
Old Harbour
South Mill Pond
LAFAYETTE RD
PEVERLY HILL RD
MIRONA RD
GREENLEAF AVE
MIDDLE RD
BANFIELD RD
CONSTITUTION AVE
HERITAGE AVE
OCEAN RD
BUCKMINSTER WAY


N
SITE
Peverly Hill Rd
Greenleaf Ave
Mirona Rd
Banfield Rd
Sagamore Creek

MAIL TO

Thomas Reis
199 Lincoln Ave
Portsmouth NH 03801

STATE OF NEW HAMPSHIRE
DEPARTMENT OF REVENUE ADMINISTRATION
REAL ESTATE TRANSFER TAX
***14 Thousand 4 Hundred 45 Dollars
DATE 09/16/2014 RO042648 AMOUNT $ ***14445.00

C/H
L-CHIP
ROA257810

035120

2014 SEP 16 AM 11:00

ROCKINGHAM COUNTY
REGISTRY OF DEEDS

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, That, WE, **ERIC S. HETT AND SUSAN A. HETT, TRUSTEES of THE ERIC S. HETT REVOCABLE TRUST OF 2006,** u/d/t dated November 30, 2006 and **ERIC S. HETT AND SUSAN A. HETT, TRUSTEES** of **THE SUSAN A. HETT REVOCABLE TRUST OF 2006,** u/d/t dated November 30, 2006, of 305 Peverly Hill Road, City of Portsmouth County of Rockingham and State if New Hampshire, for consideration paid, grant to **THOMAS E. REIS** and **MARYBETH B. REIS,** of 199 Lincoln Avenue, City of Portsmouth, County of Rockingham and State of New Hampshire, 03801 and **JAMES B. REIS** and **MEEGAN C. REIS** of 2035 State Road, Town of Eliot, County of York and State of Maine, 03903, all as joint tenants with rights of survivorship, *WITH WARRANTY COVENANTS*, the following described premises:

A certain tract or parcel of land, with any improvements thereon situate on the westerly side of Peverly Hill Road in Portsmouth, County of Rockingham, State of New Hampshire, more particularly bounded and described as follows:

Beginning at an iron rod set on the westerly sideline of Peverly Hill Road at the northeasterly corner of the premises herein conveyed and the southeasterly corner of land now or formerly of Frank and Helen Hett; thence running S 70° 36' 59" W 256.39 feet to an iron pipe; thence continuing S 70° 18' 37" W 98.49 feet to a steel fence post; thence continuing S 71° 47' 50" W 170.71 feet to a steel fence post; thence continuing S 76° 03' 00" W 160.00 feet along a stone wall to an iron rod; thence continuing along the stone wall S 76° 03' 08" W 81.22 feet a point in the stone wall; (the last four courses having been along land now or formerly of Frank and Helen Hett); thence continuing along a stone wall S 87° 20' 48" W 1,597.04 feet along land now or formerly of Frank and Helen Hett, land now or formerly of Robert and Pauline Dowd and land of the heirs if Stella Stokel, to a drill hole set in the stone wall at the point where another stone wall intersects from the south; thence continuing S 86° 17' 51" W along the stone wall along land now or formerly of the heirs of Stella Stokel, 513.12 feet to a drill hole set in the stone wall at the point where another stone wall intersects from the south; thence continuing along said Stokel land along a stone wall S 86° 43' 34" W 269.09 feet to a drill hole set at the intersection of two stone walls at the northwesterly corner of the premises herein described; thence turning and running S 20° 51' 42" W 426.58 feet along a stone wall along land of Stokel to a drill hole set in the stone wall; thence turning and running S 48° 01' 51" W 215.72 feet along the stone wall along land of Stokel to a drill hole set at the intersection of two stone walls at land now or formerly of the Swift Water Girl Scout Council; thence turning and running S 78° 13' 10" E 191.81 feet to a drill hole set at the intersection of a stone wall at the northeasterly corner of land of Swift Water Girl Scout Council; thence turning and running S 01° 16' 50" W 38.39 feet along land of Swift Water Girl Scout Council to a 6 inch by 6 inch stone bound at the intersection of two stone walls at the northwesterly corner of land now or formerly of Preston and Shirley Garrett; thence turning and running N 84° 34' 14" E 450.56 feet along a stone wall along land of Preston and Shirley Garrett to the intersection of another stone wall; thence continuing N 83° 35' 39" E 1,006.74 feet along a stone wall along land of Preston and Shirley Garrett to a drill hole set at the intersection of another stone wall at the northeasterly corner of land now or formerly of Preston and Shirley Garrett; thence continuing in a generally easterly direction along land now or formerly of John and Maud B. Hett along a stone wall 1,808 feet more or less to a point on the westerly side of Peverly Hill Road; thence turning and running N 14° 28' 07" E 145 feet, more or less, to a steel fence post; thence continuing along the westerly sideline of Peverly Hill Road N 02° 51' 19" W 344.55 feet to a steel fence post on the westerly sideline of Peverly Hill Road; thence continuing along the westerly side of Peverly Hill Road N 17° 15' 19" W 43.62 feet to an iron rod on the westerly sideline of Peverly Hill Road at land now or formerly of Frank and Helen Hett and point of beginning.

See also plan entitled " Plan of Land for John and Maud B Hett, Portsmouth, New Hampshire, December, 1988, Scale 1"= 100' prepared by M.B. Jenkins, Lee, New Hampshire" (two Sheets) recorded in the Rockingham County Registry of Deeds as Plan C-19399.

Said Property being SUBJECT TO an easement to Public Service Company of New Hampshire and being shown on City of Portsmouth Assessor Map R-55 as Lot #5. Property also being subject to a Conservation Restriction Deed from John Hett and Maud B. Hett to the City of Portsmouth dated May 26, 1989 and recorded in the Rockingham County Registry of Deeds at Book 2794, Page 0683.

Meaning and intending to convey the same premises conveyed to Eric S. Hett and Susan A. Hett, Trustees of The Eric S. Hett Revocable Trust of 2006 and Susan A. Hett and Eric S. Hett, Trustees of The Susan A. Hett Revocable Trust of 2006 by Warranty Deed of Eric S. Hett and Susan A. Hett, dated November 30, 2006 and recorded in the Rockingham County Registry of deeds at Book 4747, Page 834. See also deed at Book 3407, Page 1345.

The undersigned, Eric S. Hett and Susan A. Hett, Trustees of The Eric S. Hett Revocable Trust of 2006, under Declaration of Trust dated November 30, 2006 and The Susan A. Hett Revocable Trust of 2006, under Declaration of Trust dated November 30, 2006, have full and absolute power pursuant to and in accordance with said Trust Agreements to convey any real estate or interest in real estate held in said Trusts, and no purchaser or third party shall be bound to inquire whether the Trustees have said power or are properly exercising said power, or shall be bound to see the application of any money, property, asset paid to the Trustees for a conveyance thereof. We further certify that we are the Trustees, and that said Trusts have not been revoked, and remain in full force and effect.

Dated this 15th day of September, 2014

THE ERIC S. HETT REVOCABLE TRUST OF 2006

E Hett

Eric S. Hett, Trustee

Susan A. Hett

Susan A. Hett, Trustee

THE SUSAN A. HETT REVOCABLE TRUST OF 2006

E Hett

Eric S. Hett, Trustee

Susan A. Hett

Susan A. Hett, Trustee

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

Personally appeared this 15th day of September, 2014, the above-named Eric S. Hett and Susan A. Hett, who acknowledged themselves to be the Trustees of The Eric S. Hett Revocable Trust of 2006 and The Susan A. Hett Revocable Trust of 2006, and as such Trustees, being authorized so to do, they executed the forgoing instrument for the purposes therein contained on behalf of said Trust.

Before me,

MIRANDA L. BUTSON MY COMMISSION EXPIRES JULY 16, 2019 NOTARY PUBLIC NEW HAMPSHIRE

Notary Public/Justice of Peace
My Commission Expires:

CONSERVATION RESTRICTION DEED

John Hett and Maud B. Hett, husband and wife, of 305 Peverly Hill Road, Portsmouth, County of Rockingham, State of New Hampshire, (hereinafter sometimes referred to as "Grantors" which word where the context requires, shall, unless the context clearly indicates otherwise, include the Grantors' executors, administrators, legal representatives, devisees, heirs and/or assigns), for consideration paid, grant to the City of Portsmouth, situated in the County of Rockingham, State of New Hampshire (hereinafter referred to as the "Grantee" which word shall, unless the context clearly indicates otherwise, include the Grantee's successors and/or assigns), with WARRANTY covenants, in perpetuity, a Conservation Restriction pursuant to RSA 477:45-47 and RSA 221-A. The Conservation Restriction shall restrict the use on certain land located on the westerly side of Peverly Hill Road in Portsmouth, County of Rockingham, and more particularly described in Schedule A attached hereto (hereinafter the "Property"). The Conservation Restriction which is conveyed by this deed, is exclusively for conservation purposes, which shall include:

1. The assurance that the Property will be retained forever in its undeveloped, scenic, and open space condition and to prevent any use of the Property that will significantly impair or interfere with the conservation values of the Property.

2. The preservation of the land subject to the Restriction granted hereby for the education of the general public, through the auspices of the Grantee.

3. The preservation of open spaces, particularly the productive farm and forest land, of which the land area subject to the Restriction granted hereby consists, for the scenic enjoyment of the general public, consistent with the New Hampshire RSA Chapter 79-A which states: "It is hereby declared to be in the public interest to encourage the preservation of open space in the state by providing a healthful and attractive outdoor environment for work and recreation of the state's citizens, by maintaining the character of the state's landscape, and by conserving the land, water, forest, and wildlife resources," to yield a significant public benefit in connection therewith; and with NH RSA 221-A which states: "The intent of the program is to preserve the natural beauty, landscape, rural character and natural resources, and high quality of life in New Hampshire by acquiring lands and interests in lands of statewide, regional, and local conservation and recreation importance."

4. The preservation from development a historically important land area which was known as the Walford Plantation and which was one of the first farms established in the City of Portsmouth and which is the last active farm in the City of Portsmouth.

The terms of this Conservation Restriction are as follows:

1. USE LIMITATIONS

A. The Grantors, their successors and assigns, agree that the Property shall be maintained in perpetuity as open space without there

LOUGHLIN & WADE · ATTORNEYS AT LAW
LEONARD COTTON HOUSE · STRAWBERY BANKE · 144 WASHINGTON STREET
P O BOX 1111, PORTSMOUTH, N H 03801-1111

being conducted thereon any industrial or commercial activities, except agriculture and forestry as described below, and provided that the capacity of the property to produce forest and/or agricultural products shall not be degraded by on-site activities and that such activities will not cause significant pollution of surface or sub-surface waters or soil erosion.

i. For the purposes hereof, "agriculture" and "forestry" shall include agriculture, animal husbandry, floriculture and horticulture activities; the production of plant and animal products for domestic or commercial purposes, for example, the growing and stocking of Christmas trees or forest trees of any size capable of producing timber and other wood products; and the cutting and sale of timber and other wood products, but shall not include manufactured products or by-products. All agricultural and forestry activities conducted on the property shall be consistent with the purposes of this document.

ii. Agriculture and forestry on the Property shall be performed to the extent possible in accordance with a management plan developed by the Grantors for the sites and soils of the Property. In developing an ongoing plan Grantors shall be consistent with the current scientifically based practices recommended by the U.S. Cooperative Extension Service, U.S. Soil Conservation Service, or their successors then active. Management activities shall not materially impair the scenic quality of the Property as viewed from public roads.

B. The Property presently consists of two distinct parcels of land (shown on City of Portsmouth Tax Assessor Plan R-55 as Lots 3 and 5) and these shall not be further subdivided.

C. Subject to Section 2 below, the Grantors, their successors and assigns, shall neither perform nor permit others to perform any of the following prohibitive activities on said land:

(1) No structure or improvements such as a tennis court, swimming pool, road, dam, fence, bridge, aircraft landing strip, culvert, tower, mobile home, or shed shall be constructed, placed or introduced unto the Property except as necessary in the accomplishment of the agricultural, forestry, conservation, or recreational uses of the Property and provided that such structure or improvement is not detrimental to the purposes of this Restriction. Fences for the purpose of securing the Property are allowed. Barns and maple sugar houses to support on-site land based forestry and agricultural activities are allowed.

(2) No changes in topography, surface, or sub-surface water systems, wetlands, or natural habitats shall be allowed that would harm state or federally recognized rare or endangered species, unless necessary in the accomplishment of the agricultural, forestry habitat management, conservation or recreational uses of the Property and provided that such changes are not detrimental to the purposes of this Restriction. This shall not prohibit installation of water wells on the site for production of water for farm use.

(3) No outdoor advertising structures such as signs and

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billboards shall be displayed on the Property except as necessary in the accomplishment of the agricultural, forestry, conservation or recreational uses of the Property and provided that such outdoor advertising structures are not detrimental to the purposes of this Restriction.

(4) There shall be no mining, quarrying, excavation or removal of rocks, minerals, gravel, sand, top soil, or other similar materials on the Property, except in connection with any improvements made pursuant to the provisions of paragraphs A, B, or C above. No such rocks, minerals, gravel, sand, top soil, or other similar materials shall be removed from the Property.

(5) There shall be no dumping, injection, or burial of materials then known to be environmentally hazardous, including vehicle bodies or parts. No demolition-type wastes, scrap metal items, discarded, worn out or junked motor vehicle or parts thereof, discarded appliances, furniture, or mattresses, or similar-type rubbish shall be stored on the Property. This shall not be construed to limit, in any way, normal farm activities such as the stockpiling or spreading of animal waste, or the burying of dead farm animals which have been raised on the property.

2. RESERVED RIGHTS

A. Grantors reserve the right to post all of the Property against use by any motorized vehicle including, but not limited to, all off-highway recreational vehicles.

B. Grantors reserve the right to post all parts of the Property against hunting and trespassing.

C. Grantors reserve the right, for themselves, their heirs, successors, and assigns, to construct and operate a retail "farm stand" on the Property, said "farm stand" to be operated in compliance with all local land use regulations and shall be operated in a manner consistent with the restrictions in this document. The "farm stand" shall be located either in an area between fifty feet and three hundred feet from Peverly Hill Road or within one hundred feet of the area specifically excepted from the restrictions of this document which is the site of the existing house, barn and barnyard. (This area is described on the "Plan of Land for John and Maud Hett," Portsmouth, N.H., December, 1988) as "2.01 acre parcel excepted from conservation restriction." Adequate off-street parking shall be provided and arranged in such a way that automobiles will not back into the street. The stand or display area shall not have more than one hundred fifty square feet of gross floor or ground area. The sale of plant and animal products shall be done in accordance with the definitions of "agriculture and forestry" contained in 1-A-ii. The sale of such products shall be limited to those produced on the property.

3. AFFIRMATIVE RIGHTS OF GRANTEE

A. The Grantee shall have reasonable access to the Property and all its parts for such inspection as is necessary to maintain boundaries, to determine compliance, and to enforce the terms of this Conservation Restriction Deed and exercise the rights conveyed hereby.

B. Any other uses of the Property by the Grantee or by the public shall be with the permission of the Grantors.

4. **NOTIFICATION OF TRANSFER, TAXES, MAINTENANCE**

A. Grantors agree to notify the Grantee in writing within thirty (30) days of the transfer of the title of the Property.

B. Grantee shall be under no obligation to maintain the Property or to pay any taxes or assessments thereon.

C. Grantee shall not undertake any activity which may lead to imposition of any current use tax penalty. (RSA Chapter 79-A, Current Use Taxation)

5. **BENEFITS AND BURDENS**

The burden of the Restriction conveyed hereby shall run with the Property and shall be enforceable against all future owners and tenants in perpetuity; the benefits of said Restriction shall not be appurtenant to any particular parcel of land, but shall be in gross and assignable or transferable only to the State of New Hampshire, the U.S. Government or any subdivision or either of them, consistently with Section 170(c)(1) of the U.S. Internal Revenue Code, as amended, which government unit has among its purposes, the conservation and preservation of land and water areas and agrees to and is capable of enforcing the conservation purposes of this Restriction. Any such assignee or transferee shall have like power of assignment or transfer. In accordance with NH RSA 221-A, under which this Conservation Restriction Deed is acquired, "The sale, transfer, conveyance, or release of any such land or interest in land from public trust is prohibited." (NH RSA 221-A:11)

6. **BREACH OF EASEMENT**

A. When a breach of this Restriction comes to the attention of the Grantee, it shall notify the then owner of the Property in writing of such breach, delivered in hand or by certified mail, return receipt requested.

B. Said owner shall have thirty days (or a longer period if agreed to by Grantor and Grantee) after receipt of such notice to undertake those actions, including restoration, which are calculated to cure the conditions constituting said breach and to notify the Grantee thereof.

C. If the said owner fails to take such curative action, the Grantee, its successors or assigns, may undertake any actions that are reasonably necessary to cure such breach, and the cost thereof, including the Grantee's expenses, shall be paid by said owner, provided said owner is determined to be directly or indirectly responsible for the breach.

D. Any forbearance by the Grantee in exercise of any right or remedy hereunder or otherwise afforded by applicable law shall not be a waiver of or preclude the future exercise of any such right or remedy.

E. A violation of any condition or covenants set forth herein shall only give rise to an action at law and/or equity and shall not result in a reversion or forfeiture of the title.

7. CONDEMNATION

A. Whenever all or part of the Property is taken in exercise of eminent domain by public, corporate, or other authority so as to abrogate in whole or in part the Restriction conveyed hereby, the Grantors and the Grantee shall thereupon act jointly to recover the full damages resulting from such taking with all incidental or direct damages and expenses incurred by them thereby to be paid out of the damages recovered.

B. The balance of the damages recovered (including, for purposes of this subparagraph, proceeds from any lawful sale of the Property unencumbered by the restrictions hereunder) shall be divided between them in proportion to the fair market value of their respective interests in that part of the Property condemned on the date of execution of this conservation easement deed.

C. In determining the allocation of damages between Grantor and Grantee the value of the development rights shall be determined on the day of condemnation as shall the value of the underlying fee. The City of Portsmouth shall be entitled to the value of any development rights taken by condemnation, and the Grantors or their heirs or assigns shall be entitled to the entire value of any part of the underlying fee taken by condemnation.

8. ARBITRATION OF DISPUTES

A. Grantor and Grantee shall have the right to have any dispute arising under this Conservation Restriction Deed determined by the Superior Court or submitted to arbitration in accordance with New Hampshire RSA 542. The parties agree that New Hampshire RSA 542:2 shall not operate to stay any proceeding that either party may institute in a court of law or equity.

If either party requests that arbitration of a particular matter be undertaken, and if that matter is not at the time of the request the subject of an action in the Superior Court or if it does not become the subject of Superior Court action during the course of the arbitration, it shall be resolved by arbitration.

B. If arbitration is requested in a manner consistent with paragraph 8-A, the Grantor and the Grantee shall each choose an arbitrator and the arbitrators so chosen shall choose a third arbitrator.

C. A decision with respect to any such dispute by two of the three arbitrators shall be binding upon the parties and shall be enforceable as part of this Conservation Restriction Deed in an action at law or equity in a court of competent jurisdiction.

The Grantee by accepting and recording this Conservation Restriction Deed for itself, its successors and assigns, agrees to be bound by and to observe and enforce the provisions hereof, and assumes the rights and responsibilities herein provided for an incumbent upon the Grantee, all in furtherance of the conservation purposes for which this Conservation Restriction Deed is delivered.

Signed this 22nd day of May, 1989.

John Hett
John Hett

Maud B. Hett
Maud B. Hett
By John Hett
Attorney in Fact

STATE OF NEW HAMPSHIRE
ROCKINGHAM, SS

On this 22nd day of May, 1989, personally appeared the above named John Hett and Maud Hett, known to me or satisfactorily proven to be the persons described in the foregoing instrument, and acknowledged that they executed the same in the capacity therein stated and for the purposes therein contained.

Justice of the Peace/~~Notary Public~~

Accepted:

THE CITY OF PORTSMOUTH

Calvin A. Canney
Title: City Manager

STATE OF NEW HAMPSHIRE
ROCKINGHAM, SS

On this 25 day of May, 1989, personally appeared the above named Calvin A. Canney, City Manager of the City of Portsmouth, known to me or satisfactorily proven to be the person described in the foregoing instrument, and acknowledged that he was duly authorized and executed the same in the capacity therein stated and for the purposes therein contained.

Sharon A. Cuddy
Justice of the Peace/~~Notary Public~~

APPENDIX A

A certain tract or parcel of land situated on the westerly side of Peverly Hill Road in Portsmouth, County of Rockingham, State of New Hampshire, more particularly bounded and described as follows:

Beginning at an iron rod on the westerly sideline of Peverly Hill Road at the northeasterly corner of the premises herein conveyed and the southeasterly corner of property now or formerly of Frank Hett and Helen Hett; thence running S 70° 36' 59" W 256.39 feet along land now or formerly of Frank Hett and Helen Hett to an iron pipe; thence continuing S 70° 18' 37" W 98.49 feet along land now or formerly of Frank Hett and Helen Hett to a steel fence post; thence turning and running S 31° 19' 35" E 30.77 feet through other land of John Hett and Maud Hett to a 3" iron rod; thence continuing S 03° 37' 11" E 267.28 feet through land of John Hett and Maud Hett to an iron rod; thence turning and running S 76° 59' 08" W 281.88 feet through land of John Hett and Maud Hett to an iron rod; thence turning and running N 15° 57' 42" W 275.23 feet through land of John Hett and Maud Hett to an iron rod in a stone wall at land now or formerly of Frank Hett and Helen Hett; thence turning and running along said stone wall S 76° 03' 00" W 81.22 feet; thence continuing along said stone wall S 87° 20' 48" W 1,597.04 feet along land of Frank Hett and Helen Hett, Dowd, and the Heirs of Stella Stokel to a drill hole in a stone wall at a point where another stone wall intersects from the south; thence continuing along land now or formerly of said Stokel along the stone wall S 86° 17' 51" W 513.12 feet to a drill hole set in the stone wall at the location where another stone wall intersects on the south side; thence continuing along land now or formerly of the Heirs of Stella Stokel S 86° 43' 34" W 269.09 feet along a stone wall to a drill hole in an intersection of two stone walls at the northwesterly corner of the premises herein conveyed; thence turning and running S 20° 51' 42" W 426.58 feet along a stone wall along other land of the Heirs of Stella Stokel to a drill hole set in a stone wall; thence turning and running S 48° 01' 51" W 215.72 feet along a stone wall along land now or formerly of the Heirs of Stella Stokel to a drill hole set in a stone wall at land now or formerly of the Swiftwater Girl Scout Council; thence turning and running S 78° 13' 10" E 191.81 feet along a stone wall along land now or formerly of Swiftwater Girl Scout Council to a drill hole set at an angle in the stone wall at the northeasterly corner of land now or formerly of Swiftwater Girl Scout Council; thence turning and running S 01° 16' 50" W 38.39 feet along a stone wall along land now or formerly of Swiftwater Girl Scout Council to a 6" X 6" stone bound at the intersection of two stone walls; thence turning and running N 84° 34' 14" E 450.56 feet along a stone wall along land now or formerly of Preston Garrett and Shirley Garrett to a point where a stone wall intersects from the north; thence continuing along the stone wall N 83° 35' 39" E 1,006.74 feet along land now or formerly of Preston Garrett and Shirley Garrett to a drill hole at the intersection of two stone walls at the northeasterly corner of land now or formerly of said Garrett; thence turning and running S 28° 08' 34" E 388.51 feet to a drill hole at the intersection of two stone walls at the southeasterly corner of land of Garrett and at land now or formerly owned by John Hett and Walter Hett; thence turning and running N 78° 41' 43" E 115.72 feet along a stone wall along land of John Hett and Walter Hett to a drill hole at an angle in the stone wall; thence turning and running S 11° 45' 31" E 318.10 feet to a point 5 feet N 11° 45' 31" W of a 4" X 4" stone bound at land of Temple Israel; thence turning and running N 78° 01' 59" E 143.44 feet through land of grantors running parallel to land of Temple Israel to a point; thence turning and running S 11° 45' 31" E 5 feet, more or less, to a stone wall at land of John Hett and Walter Hett and at a point 5 feet, more or less, N 71° 58' 05" E from the northeasterly corner of land of Temple Israel; thence continuing along a stone wall N 71° 58' 05 E 1,054.70 feet along land of John Hett and Walter Hett to a drill hole at the intersection of a stone wall which runs along the westerly sideline of Peverly Hill Road; thence turning and running N 24° 03' 54" E 174.35 feet along the westerly sideline of Peverly Hill Road to an iron rod on the westerly sideline of Peverly Hill Road at the southeasterly corner of land now or formerly of Eric Hett and Susan Hett; thence turning and running N 77° 00' 57" W 210.00 feet along land now or formerly of Eric Hett and Susan Hett to an iron rod; thence turning and running N 09° 27' 49" E 210.00 feet along land now or formerly of Eric Hett and Susan Hett to an iron rod; thence turning and running N 71° 40' 34" E 185.00 feet along land now or formerly of Eric Hett and Susan Hett to an iron pipe at the northerly corner of land now or formerly of Eric Hett and Susan Hett and the northwesterly corner of land now or formerly of McKee; thence turning and running along land now or formerly of said McKee N 71° 40' 34" E 138.11 feet to an iron pipe; thence continuing along land of said McKee S 64° 40' 25" E 35.33 feet to an iron pipe on the westerly sideline of Peverly Hill Road; thence turning and running N 26° 36' 44" E 62.36 feet along the westerly sideline of Peverly Hill to a drill hole at the end of a section of stone wall; thence continuing N 14° 28' 07" E 160.71 along the westerly sideline of Peverly Hill Road to a steel fence post; thence continuing along the westerly sideline of Peverly Hill Road N 02° 51' 19" W 344.55 feet to a steel fence post; thence continuing N 17° 15' 19" W 43.62 feet to an iron rod on the westerly sideline of Peverly Hill Road at land of Frank Hett and Helen Hett and point of beginning.

Said property being shown on a plan entitled "Plan of Land for John & Maud Hett, Portsmouth, N.H., Dec. 1988, Scale 1 in. = 100 ft., Survey by M.E. Jenkins, Lee, N.H.", 2 sheets. The plan will be recorded on even date with this deed in the Rockingham County Registry of Deeds.

Excepting and reserving to the grantors, their heirs, successors and assigns, a perpetual easement appurtenant to the grantors' remaining land for the right to pass, and repass for all vehicles, pedestrians and animals, as well as a perpetual easement to maintain, repair and replace existing utilities, including but not limited to electric, water, sewer, cable television, gas, and telephone across two driveways from Peverly Hill Road to the existing farmhouse building. These driveways are shown as dashed lines on the above referenced plan. The northerly driveway is shown as intersecting Peverly Hill Road near the land now or formerly of Frank Hett and Helen Hett, and the southerly driveway is shown as intersecting Peverly Hill Road approximately 90 feet north of the northeasterly corner of land now or formerly of J.J. McKee near N.E.T.&T. Pole #47.

The premises described in this Appendix A are subject to a pole line easement of New Hampshire Electric known as "Foyes Corner Tap", recorded in the Rockingham County Registry of Deeds at Book 1310, Page 31; and an easement to Public Service Company of New Hampshire, recorded

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in the Rockingham County Registry of Deeds at Book 2281, Page 993.

The land described in Appendix A is composed of two separate subdivided lots which are not merged by this conveyance. The more northerly lot is shown on City of Portsmouth Assessor Plan R-55 as Lot 5. For title reference on this lot, see deed of Piscataqua Savings Bank to John Hett and Maud B. Hett dated May 7, 1940, and recorded in the Rockingham County Registry of Deeds at Book 966, Page 257. See also deed of Albert D. Foster, Treasurer, to Piscataqua Savings Bank, dated February 28, 1940, and recorded in the Rockingham County Registry of Deeds at Book 969, Page 32. For further title reference see deed of Florence G. Cummings to Charles H. Umstead, dated December 26, 1925, recorded in said Registry of Deeds at Book 800, Page 277.

The southerly portion of the premises described in Appendix A is shown on City of Portsmouth Assessor Plan R-55 as Lot 3. For further title reference, see deed of Arnold T. Wiggin, Executor under the will of George T. Wiggin, to John Hett and Maud B. Hett, dated March 2, 1971, and recorded in the Rockingham County Registry of Deeds at Book 2057, Page 493. See also out deed of John Hett and Maud Hett to Thomas E. Webb and Donna L. Webb dated July 20, 1971 and recorded in the Rockingham County Registry of Deeds at Book 2082, Page 193. For further title reference, see deed of James Schurman to George T. Wiggin dated September 26, 1910 recorded in the Rockingham County Registry of Deeds at Book 655, Page 118; and deed of Andrew M. Gardner to George T. Wiggin dated January 24, 1911 recorded in the Rockingham County Registry of Deeds at Book 660, Page 66.

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THIS DRAWING SET HAS NOT BEEN RELEASED FOR CONSTRUCTION

The Reis Farm

305 Peverly Hill Road
Portsmouth, NH 03801

Assessor's Parcel 255, Lot 5

ISSUED FOR TAC

Plan Issue Date:

February 21, 2023

Owner/Applicant:

THOMAS E., MARYBETH B,
JAMES B. AND MEEGAN C. REIS

305 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
(603) 218-1910

Civil Engineer:

ALTUS ENGINEERING

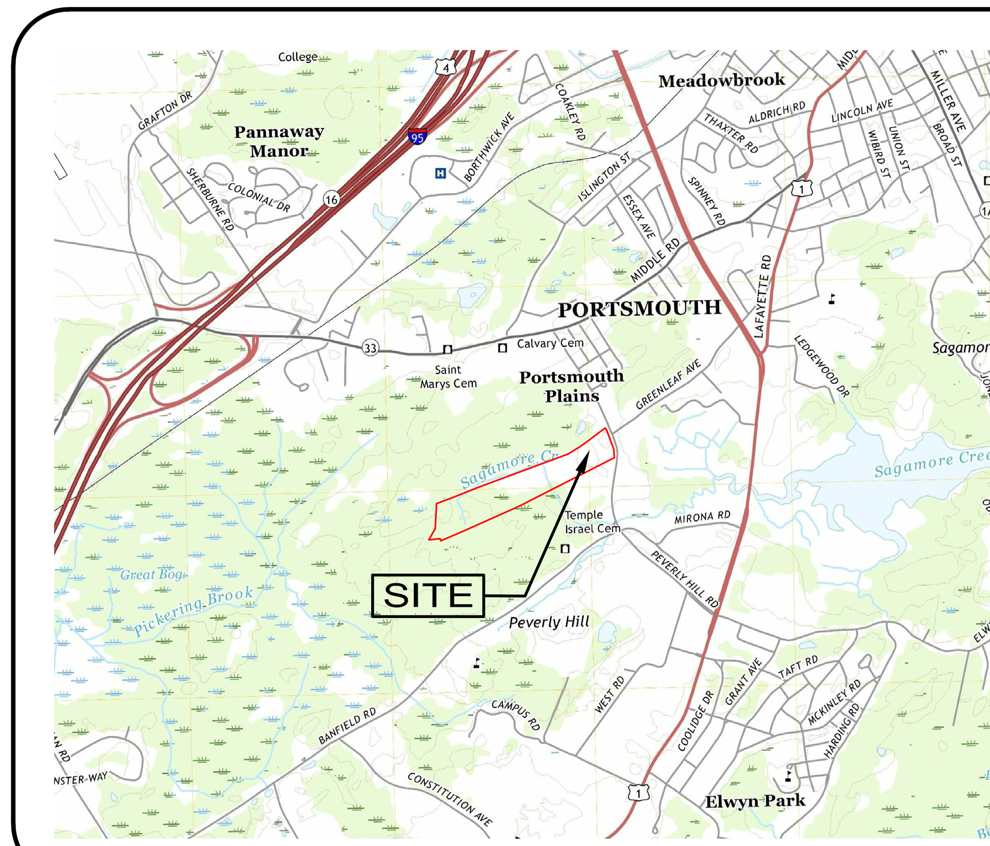
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

Surveyor:

Ambit Engineering, Inc.

CIVIL ENGINEERS & LAND SURVEYORS

200 Griffin Road, Unit 3
Portsmouth, New Hampshire 03801
Tel. 603-430-9282



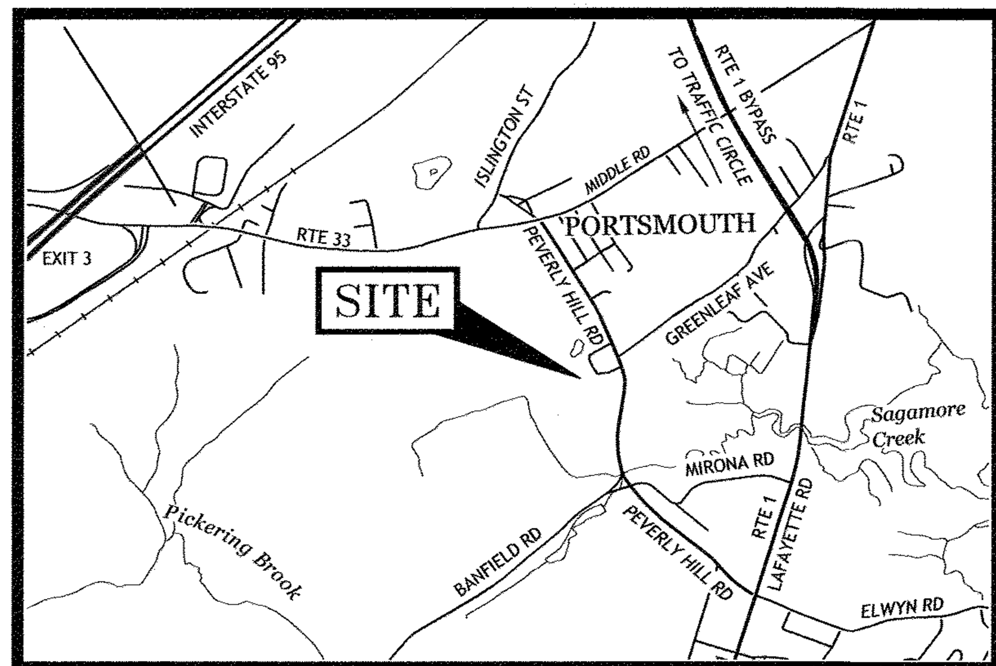
LOCUS NOT TO SCALE

Sheet Index

Title	Sheet No.:	Rev.	Date
Existing Conditions Plan	C-1	0	01/06/23
Site and Utilities Plan	C-2	0	02/21/23
Site and Utilities Plan	C-3	0	02/21/23
Detail Sheet	C-4	0	02/21/23
Front Elevation	–	0	12/13/22
Right Elevation	–	0	12/13/22
Rear Elevation	–	0	12/13/22
Left Elevation	–	0	12/13/22

Permit Summary	Submitted	Received
Portsmouth ZBA Approval	01/10/23	01/24/23
Portsmouth Site Plan Approval	02/21/23	–

P5411



LOCATION MAP SCALE: 1"=2000'

LEGEND:

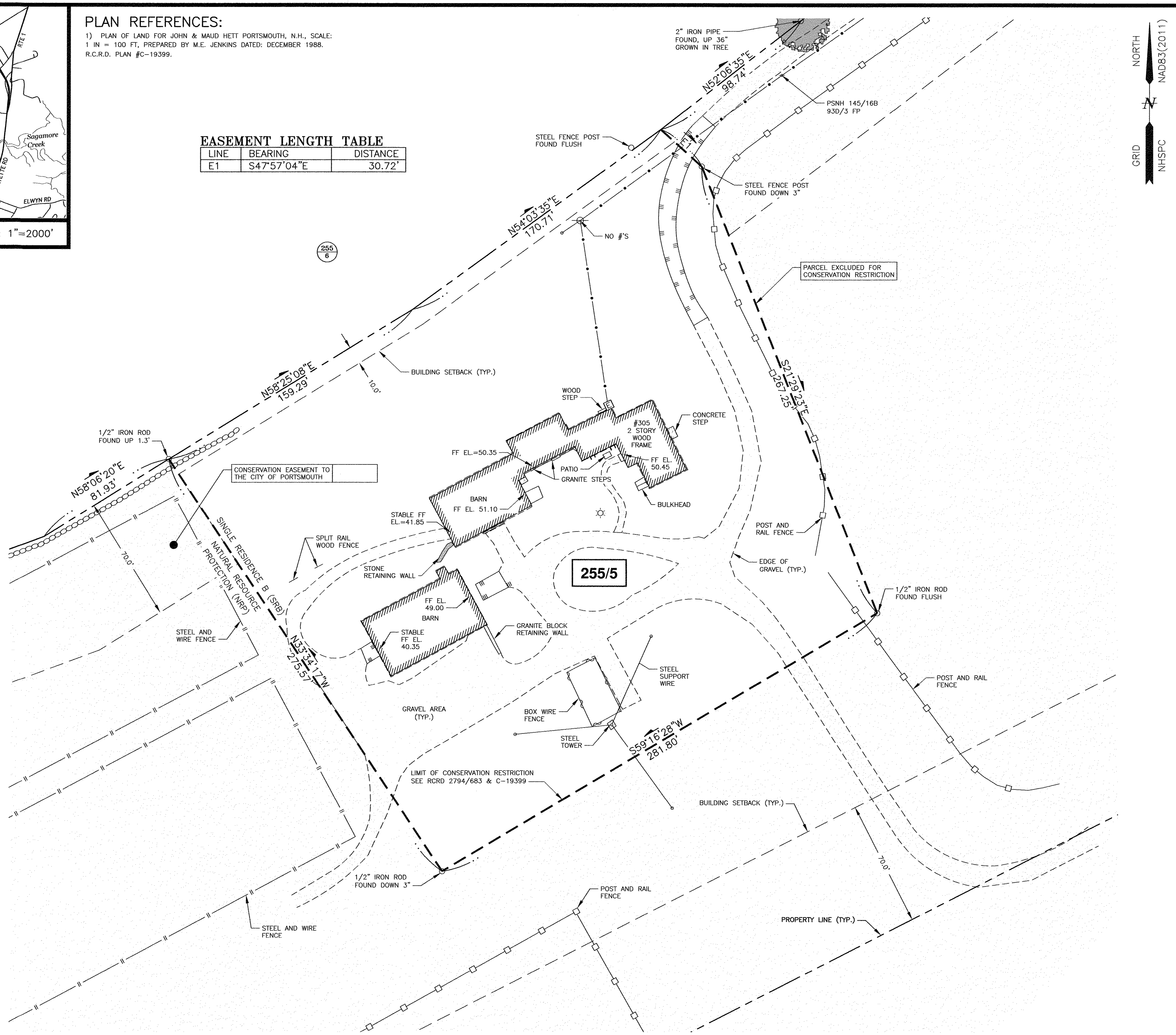
N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
11/21	MAP 11 / LOT 21
	BOUNDARY
	SETBACK
	IRON ROD/PIPE FOUND
	OVERHEAD ELECTRIC/WIRES
100	CONTOUR
	EDGE OF PAVEMENT (EP)
	UTILITY POLE (w/ GUY)
E	ELECTRIC METER
EL.	ELEVATION
FF	FINISHED FLOOR
INV.	INVERT
TBM	TEMPORARY BENCHMARK
TYP.	TYPICAL

PLAN REFERENCES:

1) PLAN OF LAND FOR JOHN & MAUD HETT PORTSMOUTH, N.H., SCALE: 1 IN = 100 FT, PREPARED BY M.E. JENKINS DATED: DECEMBER 1988. R.C.R.D. PLAN #C-19399.

EASEMENT LENGTH TABLE

LINE	BEARING	DISTANCE
E1	S47°57'04"E	30.72'



GRAPHIC SCALE

30 0 50 100 120 FEET
10 5 0 10 20 30 METERS

"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

1·6·23

JOHN R. CHAGNON, LLS #738 DATE

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 255 AS LOT 5.

2) OWNERS OF RECORD:
THOMAS E. REIS & MARYBETH R. REIS
JAMES B. REIS & MEEGAN C. REIS
305 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
5560/2148
C-19399

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0270F, EFFECTIVE DATE 1/29/2021.

4) EXISTING LOT AREA:
39.7 ACRES (PER CITY ASSESSOR DATABASE)

5) PARCEL IS LOCATED IN THE NATURAL RESOURCE PROTECTION (NRP) & SINGLE RESIDENCE B (SRB) DISTRICTS.

6) DIMENSIONAL REQUIREMENTS:

NATURAL RESOURCES PROTECTION (NRP)

MIN. LOT AREA:	N/A
FRONTAGE:	N/A
SETBACKS:	
FRONT:	70 FEET
SIDE:	70 FEET
REAR:	70 FEET
MAXIMUM STRUCTURE HEIGHT	35 FEET
MAXIMUM BUILDING COVERAGE	N/A
MINIMUM OPEN SPACE:	95%

SINGLE RESIDENCE B (SRB)

MIN. LOT AREA:	15,000 S.F.
FRONTAGE:	100 FEET
SETBACKS:	
FRONT:	30 FEET
SIDE:	10 FEET
REAR:	30 FEET
MAXIMUM STRUCTURE HEIGHT:	35 FEET
MAXIMUM BUILDING COVERAGE:	20%
MINIMUM OPEN SPACE:	40%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON A PORTION OF ASSESSOR'S MAP 255, LOT 5 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

9) THIS PLAN DEPICTS THE PORTION OF ASSESSORS MAP 255 LOT 5 IDENTIFIED AS "PARCEL EXCEPTED FROM CONSERVATION RESTRICTION" AS SHOWN ON PLAN REFERENCE 1. THIS PORTION OF THE LOT IS LOCATED IN SINGLE RESIDENCE B (SRB) ZONING DISTRICT. THE REMAINDER OF THE LOT IS LOCATED IN THE NATURAL RESOURCES PROTECTION (NRP) DISTRICT.

10) PARCEL PARTIALLY SUBJECT TO CONSERVATION RESTRICTIONS AS STATED IN RCRD 2794/683.

REIS RESIDENCE 305 PEVERLY ROAD PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	1/6/23

REVISIONS

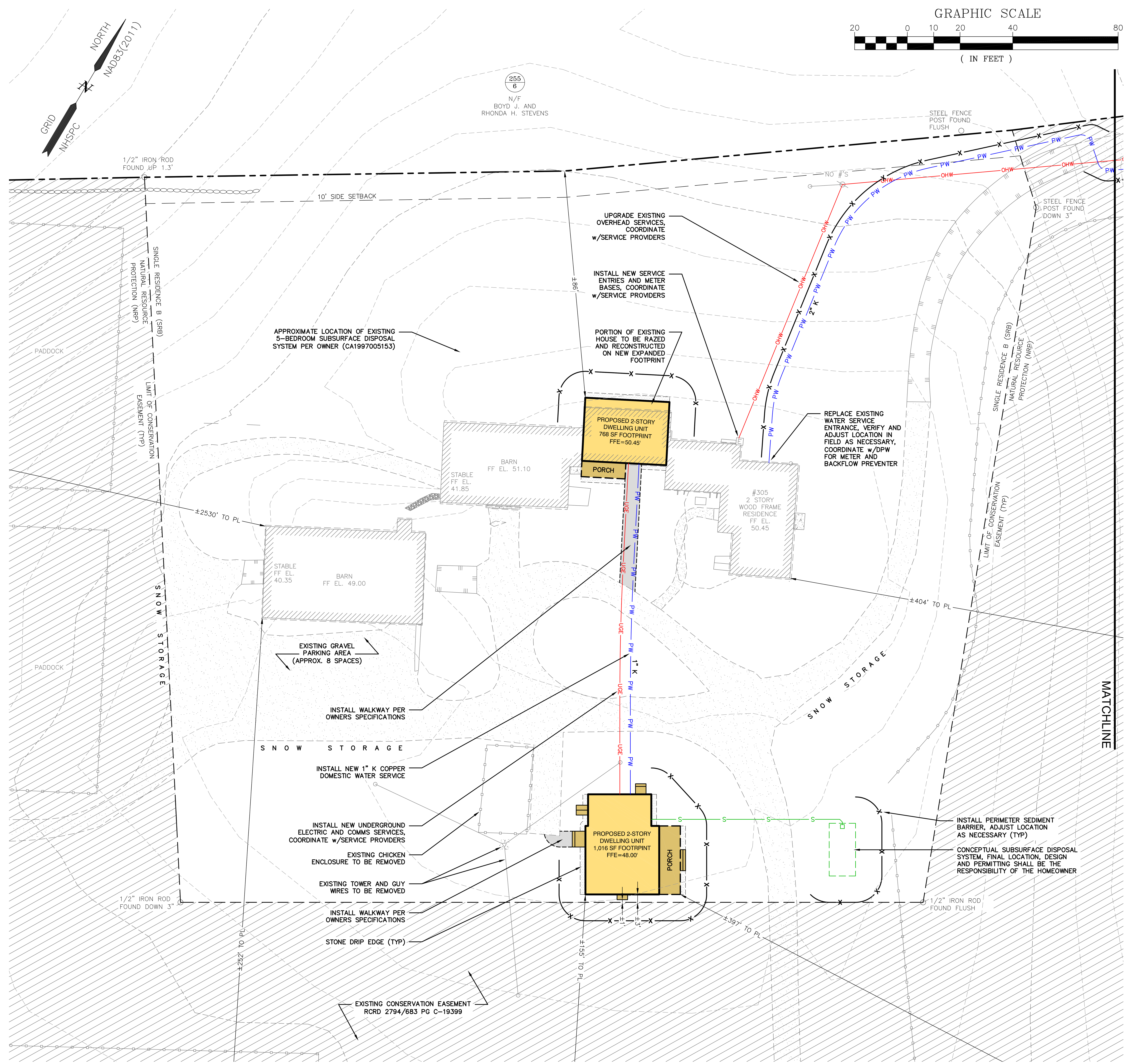
SCALE: 1"=30' DECEMBER 2022

EXISTING CONDITIONS PLAN

C1

FB 445 PG 1

568.01



SITE NOTES

1. DESIGN INTENT – THIS PLAN SET IS INTENDED TO DEPICT THE ADDITION OF TWO RESIDENTIAL UNITS TO THE SITE TOGETHER WITH ASSOCIATED SITE IMPROVEMENTS.
2. APPROXIMATE LOT AREA: 1,690,603 S.F. (±38.81 AC.)
3. ZONE: SINGLE RESIDENCE B (SRB) & NATURAL RESOURCE PROTECTION (NRP)
4. DIMENSIONAL REQUIREMENTS (SRB):

MIN. LOT AREA:	15,000 S.F.
MIN. STREET FRONTAGE:	100'
FRONT SETBACK:	30'
SIDE SETBACK:	10'
REAR SETBACK:	30'
MAX. BUILDING HEIGHT:	35'
MAX. BLDG. COVERAGE:	20% (0.35% EXISTING, 0.43% PROPOSED)
MIN. OPEN SPACE:	40% (1.54% EXISTING, 1.65% PROPOSED)
WETLAND SETBACK:	100'

4. PARKING REQUIREMENTS:

AGRICULTURAL USES:		NO REQUIREMENT
DWELLING UNITS:	<300 S.F.	0.5 SPACES/UNIT
	500–750 S.F	1.0 SPACES/UNIT
	>750 S.F.	1.3 SPACES UNIT
3 UNITS >750 S.F. x 1.3 SPACES		= 3.9 SPACES
TOTAL PARKING REQUIRED		= 4 SPACES
TOTAL PARKING PROVIDED		= 8+ SPACES

5. OVERALL AREA OF DISTURBANCE UNDER 100,000 S.F., NHDES ALTERATION OF TERRAIN PERMIT NOT REQUIRED.
6. AREA OF DISTURBANCE UNDER 43,560 SF, COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT NOT REQUIRED (NOI, SWPPP AND INSPECTIONS NOT REQUIRED).
7. THE FOLLOWING VARIANCES FROM THE PORTSMOUTH ZONING ORDINANCE WERE GRANTED BY THE PORTSMOUTH BOARD OF ADJUSTMENT ON JANUARY 24, 2023:

   SECTION 10.440 USE #1.30 – TO ALLOW A TWO UNIT DWELLING IN THE SRB DISTRICT.

   SECTION 10.513 – TO ALLOW MORE THAN ONE FREESTANDING DWELLING UNIT ON A LOT IN THE SRB DISTRICT.

   ZBA APPROVAL CONDITIONED ON A MAXIMUM OF 3 DWELLING UNITS.
8. NO WETLANDS OR FLOODPLAINS ARE LOCATED WITHIN THE PROJECT LIMITS.
9. THE PROJECT AREA IS NOT IN A WELLHEAD OR AQUIFER PROTECTION AREA.
10. ALL CONSTRUCTION SHALL MEET THE MINIMUM STANDARDS OF THE CITY OF PORTSMOUTH & NHDOT'S STANDARD SPECIFICATION FOR ROAD & BRIDGE CONSTRUCTION, LATEST EDITIONS. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
11. ALL BONDS AND FEES SHALL BE PAID/POSTED PRIOR TO INITIATING CONSTRUCTION.
12. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION. ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR RESOLUTION.
13. BUILDING AREA SHOWN IS BASED ON FOOTPRINT MEASURED TO THE EDGE OF FOUNDATIONS AND/OR SLABS. ACTUAL INTERIOR SPACE WILL DIFFER.
14. SOLID WASTE IS DELIVERED TO THE MUNICIPAL TRANSFER/RECYCLING STATION ON A WEEKLY BASIS.
15. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
16. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
17. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
18. SNOW TO BE STORED AT THE EDGE OF DRIVEWAYS AND PARKING AREAS AND IN LOCATIONS SHOWN.
19. TOPOGRAPHY SHOWN WAS OBTAINED FROM THE CITY OF PORTSMOUTH GIS DATABASE. CONTRACTOR TO VERIFY ELEVATIONS PRIOR TO CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO INITIATING WORK.

RECORDING OF THIS PLAN IS A REQUIREMENT OF THE PORTSMOUTH PLANNING BOARD AS PART OF THEIR APPROVAL.

FOR AMBIT ENGINEERING, INC.

DATE

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF NEW HAMPSHIRE ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER
2/22/23

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: FEBRUARY 21, 2023

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	TAC	EBS	02/21/23

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5411-SITE.dwg

SCALE:
22" x 34" – 1" = 20'
11" x 17" – 1" = 40'

OWNER:
THOMAS E., MARYBETH B., JAMES B. AND MEEGAN C. REIS
305 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801

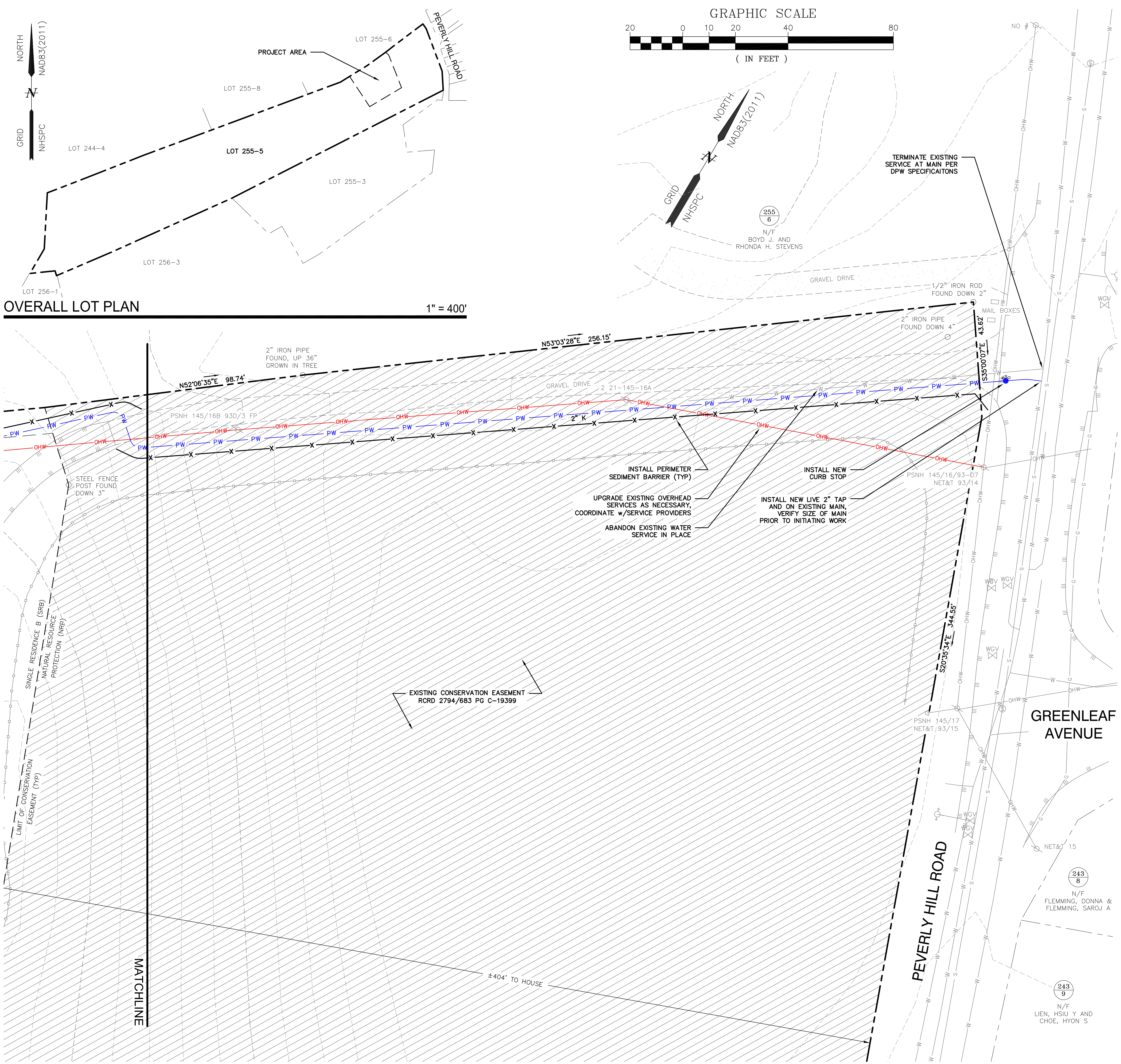
APPLICANT:
THOMAS E., MARYBETH B., JAMES B. AND MEEGAN C. REIS
305 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801

PROJECT:
REIS FARM
TAX MAP 255 LOT 5
305 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801

TITLE:
SITE AND UTILITIES PLAN

SHEET NUMBER:
C-2

P5411



UTILITY NOTES

1. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE. CATCH BASINS, MANHOLES, WATER GATES, ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY PROVIDERS AND GOVERNMENTAL AGENCIES. AS SUCH, THEY ARE NOT INCLUSIVE AS OTHER UTILITIES AND UNDERGROUND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS MAY EXIST. THE ENGINEER, SURVEYOR AND OWNER ACCEPT NO RESPONSIBILITY FOR POTENTIAL INACCURACIES IN THE PLAN AND/OR UNFORESEEN CONDITIONS. THE CONTRACTOR SHALL NOTIFY, IN WRITING, SAID AGENCIES, UTILITY PROVIDERS, CITY OF PORTSMOUTH DPW AND OWNER'S AUTHORIZED REPRESENTATIVE AND CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WORK.
2. PRIOR TO CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING AND PROPOSED STORMWATER AND UTILITY LINES. CONFLICTS SHALL BE ANTICIPATED AND ALL EXISTING LINES TO BE RETAINED SHALL BE PROTECTED. ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED AND, IF NECESSARY, EXISTING UTILITIES SHALL BE RELOCATED AT NO EXTRA COST TO THE OWNER. ALL CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DPW AND APPROPRIATE UTILITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSTING OF ALL BONDS AND PAYMENT OF ALL TAP, TIE-IN AND CONNECTION FEES.
4. ALL ROAD/LANE CLOSURES OR OTHER TRAFFIC INTERRUPTIONS SHALL BE COORDINATED WITH THE PORTSMOUTH POLICE DEPARTMENT AND DPW AT LEAST TWO WEEKS PRIOR TO COMMENCING RELATED CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, BEDDING, BACKFILL & COMPACTION FOR ALL UTILITY TRENCHING IN ADDITION TO ALL CONDUIT INSTALLATION AND COORDINATION OF ALL REQUIRED INSPECTIONS.
6. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL CONFORM TO FEDERAL OSHA AND CITY REGULATIONS.
7. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH AND NHDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
8. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
9. ALL WATER MAIN AND SERVICE INSTALLATIONS SHALL BE CONSTRUCTED AND TESTED PER PORTSMOUTH DPW STANDARDS AND SPECIFICATIONS. ALL OTHER UTILITIES SHALL BE TO THE STANDARDS AND SPECIFICATIONS OF THE RESPECTIVE UTILITY PROVIDERS.
10. WHERE WATER LINES CROSS, RUN ADJACENT TO OR ARE WITHIN 5' OF STORM DRAINAGE PIPES OR STRUCTURES, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR FROST PROTECTION.
11. WATER AND SANITARY SEWER LINES SHALL BE LOCATED AT LEAST 10' HORIZONTALLY FROM EACH OTHER. WHERE CROSSING, 18" MINIMUM VERTICAL CLEARANCE SHALL BE PROVIDED WITH WATER INSTALLED OVER SEWER.
12. ALL NEW WATER PIPING SHALL BE K COPPER. THE CONTRACTOR HAS THE OPTION TO SUBSTITUTE CTS WITH THE APPROVAL OF PORTSMOUTH DPW.
13. WATER/WASTEWATER DEMAND (USING NHDES SUBSURFACE CRITERIA):
    8 BEDROOMS x 150 GPD = 1,200 GPD TOTAL FLOW (WASTEWATER TO BE DIRECTED TO ONSITE SUBSURFACE DISPOSAL SYSTEMS, ONE 5-BEDROOM SYSTEM CURRENTLY EXISTS (#CA1997005153), ONE NEW 3-BEDROOM SYSTEM TO BE CONSTRUCTED)
14. UTILITY PROVIDERS AND CONTACTS:
    - WATER & SEWER: PORTSMOUTH DPW, JIM TOW, (603) 427-1530.
    - GAS: UNITIL, DAVID BEAULIEU, (603) 294-5144.
    - TELECOMMUNICATIONS: CONSOLIDATED, JOE CONSIDINE, (603) 427-5525.
    - CABLE: COMCAST, MIKE COLLINS, (603) 679-5695, EXT. 1037.
    - ELECTRICAL: EVERSOURCE, MICHAEL BUSBY, (603) 332-4227, EXT. 5555334. ALL ELECTRIC CONDUIT INSTALLATION SHALL BE INSPECTED BY EVERSOURCE PRIOR TO BACKFILL, 48-HOUR MINIMUM NOTICE REQUIRED.
17. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR EXACT LOCATIONS & ELEVATIONS OF UTILITY CONNECTIONS AT BUILDINGS. COORDINATE ALL WORK WITHIN FIVE (5) FEET OF BUILDINGS WITH BUILDING CONTRACTOR AND ARCHITECTURAL/MECHANICAL DRAWINGS. ALL CONFLICTS AND DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY PRIOR TO COMMENCING RELATED WORK.
16. FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE ARCHITECT, CONTRACTOR, APPROPRIATE UTILITY COMPANIES AND THE PORTSMOUTH DPW.
17. ASIDE FROM VISIBLE SURFACE FEATURES SUCH AS VALVES AND HYDRANTS, ALL WATER LINE INFORMATION IN THE PEVERLY HILL ROAD RIGHT OF WAY WAS OBTAINED FROM PORTSMOUTH DPW. ALTUS ENGINEERING DOES NOT WARRANT THE ACCURACY OF THIS DATA.

RECORDING OF THIS PLAN IS A REQUIREMENT OF THE PORTSMOUTH PLANNING BOARD AS PART OF THEIR APPROVAL.

FOR AMBIT ENGINEERING, INC.

DATE

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF NEW HAMPSHIRE ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER

2/22/23

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ISSUE DATE: FEBRUARY 21, 2023

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APPLICANT:
THOMAS E., MARYBETH B., JAMES B. AND MEEGAN C. REIS
305 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801

PROJECT:
REIS FARM
TAX MAP 255 LOT 5
305 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801

TITLE:
SITE AND UTILITIES PLAN

SHEET NUMBER:
C-3

P5411

SEDIMENT AND EROSION CONTROL NOTES

PROJECT NAME AND LOCATION

REIS FARM
305 PEVERLY HILL ROAD
PORTSMOUTH, NEW HAMPSHIRE
TAX MAP 255 LOT 5

LATITUDE: 43°03'08" N
LONGITUDE: 70°46'50" W

OWNER/APPLICANT:
THOMAS E., MARYBETH B., JAMES B. AND MEEGAN C. REIS
305 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801

DESCRIPTION

The project consists of the renovation an expansion of an existing residence and the construction of a new detached residence together with associated site improvements.

DISTURBED AREA

The total area to be disturbed for the development is ±8,025 S.F. (±0.18 acres).

PROJECT PHASING

The proposed project will be completed in one phase.

NAME OF RECEIVING WATER

The site drains over land to to Sagamore Creek.

SEQUENCE OF MAJOR ACTIVITIES

1. Install temporary erosion control measures including perimeter controls, stabilized construction entrance and inlet sediment filters as noted on the plan. All temporary erosion control measures shall be maintained in good working condition for the duration of the project.
2. Remove landscaping and trees, strip loam and stockpile.
3. Demolish existing site features, buildings, utilities, etc. as shown on Demolition Plan.
4. Construct building foundations.
5. Construct new buildings and associated improvements.
6. Rough grade site including placement of borrow materials.
7. Construct utilities.
8. Loam (6" min) and seed on all disturbed areas not paved or otherwise stabilized.
9. When all construction activity is complete and site is stabilized, remove all temporary erosion control measures and any sediment that has been trapped by these devices.

TEMPORARY EROSION & SEDIMENT CONTROL AND STABILIZATION PRACTICES

All work shall be in accordance with state and local permits. Work shall conform to the practices described in the "New Hampshire Stormwater Manual, Volumes 1 – 3", issued December 2008, as amended. As indicated in the sequence of Major Activities, perimeter controls shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Once construction activity ceases permanently in an area and permanent measures are established, perimeter controls shall be removed.

During construction, runoff will be diverted around the site with stabilized channels where possible. Sheet runoff from the site shall be filtered through appropriate perimeter controls. All storm drain inlets shall be provided with inlet protection measures.

Temporary and permanent vegetation and mulching is an integral component of the erosion and sedimentation control plan. All areas shall be inspected and maintained until vegetative cover is established. These control measures are essential to erosion prevention and also reduce costly rework of graded and shaped areas.

Temporary vegetation shall be maintained in these areas until permanent seeding is applied. Additionally, erosion and sediment control measures shall be maintained until permanent vegetation is established.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

A. GENERAL

These are general inspection and maintenance practices that shall be used to implement the plan:

1. The smallest practical portion of the site shall be denuded at one time.
2. All control measures shall be inspected at least once each week and following any storm event of 0.5 inches or greater.
3. All measures shall be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours.
4. Built–up sediment shall be removed from perimeter barriers when it has reached one–third the height of the barrier or when "bulges" occur.
5. All diversion dikes shall be inspected and any breaches promptly repaired.
6. Temporary seeding and planting shall be inspected for bare spots, washouts, and unhealthy growth.
7. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the Plans.
8. An area shall be considered stable if one of the following has occurred:
   a. Base coarse gravels have been installed in areas to be paved;
   b. A minimum of 85% vegetated growth as been established;
   c. A minimum of 3 inches of non–erosive material such as stone of riprap has been installed; – or –
   d. Erosion control blankets have been properly installed.
9. The length of time of exposure of area disturbed during construction shall not exceed 45 days.

B. MULCHING

Mulch shall be used on highly erodible soils, on critically eroding areas, on areas where conservation of moisture will facilitate plant establishment, and where shown on the plans.

1. Timing – In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this:
   a. Apply mulch prior to any storm event. This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
   b. Required Mulching within a specified time period. The time period can range from 21 to 28 days of inactivity on a area, the length of time varying with site conditions. Professional judgment shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.
2. Guidelines for Winter Mulch Application –

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (CONTINUED)

Type	Rate per 1,000 s.f.	Use and Comments
Hay or Straw	70 to 90 lbs.	Must be dry and free from mold. May be used with plantings.
Wood Chips or Bark Mulch	460 to 920 lbs.	Used mostly with trees and shrubs.
Jute and Fibrous Matting (Erosion Blanket	As per manufacturer Specifications	Used in slope areas, water courses and other Control areas.
Crushed Stone 1/4" to 1–1/2" dia.	Spread more than 1/2" thick	Effective in controlling wind and water erosion.
Erosion Control Mix	2" thick (min)	* The organic matter content is between 80 and 100%, dry weight basis. * Particle size by weight is 100% passing a 6"screen and a minimum of 70 %, maximum of 85%, passing a 0.75" screen. *The organic portion needs to be fibrous and elongated. *Large portions of silts, clays or fine sands are not acceptable in the mix. * Soluble salts content is less than 4.0 mmhos/cm. *The pH should fall between 5.0 and 8.0.

3. Maintenance – All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.

C. PERMANENT SEEDING –

1. Bedding – stones larger than 1½", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 5" to prepare a seedbed and mix fertilizer into the soil.
2. Fertilizer – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and organic fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied:

   Agricultural Limestone @ 100 lbs. per 1,000 s.f.
   10–20–20 organic fertilizer @ 12 lbs. per 1,000 s.f.

3. Seed Mixture (recommended):

Type	Lbs. / Acre	Lbs. / 1,000 sf
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Seed Mixture (For slope embankments):
Grass Seed: Provide fresh, clean, new–crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as specified:

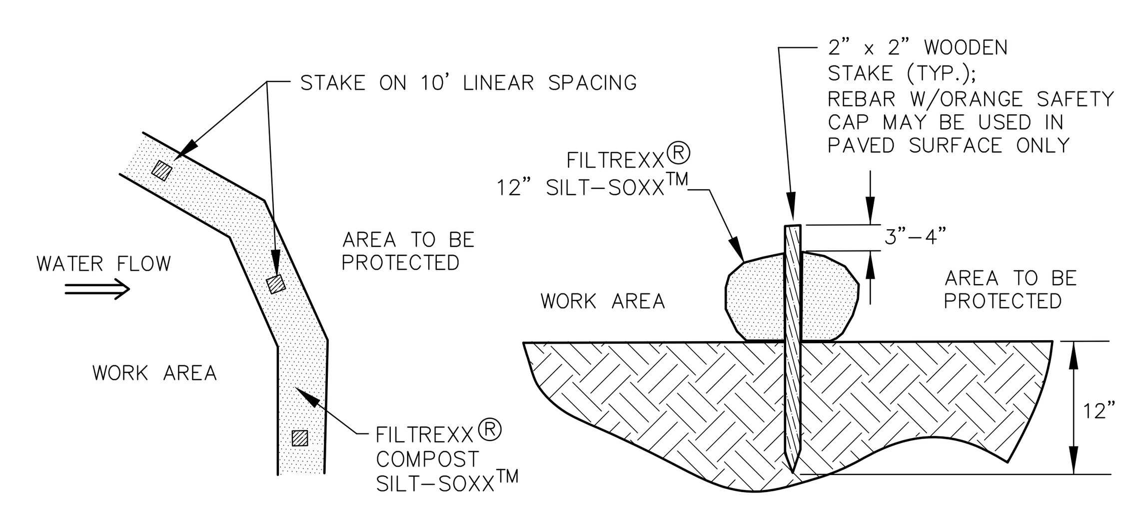
Type	Min. Purity (%)	Min. Germination (%)	Kg./Hectare (Lbs/Acre)
Creeping Red Fescue (c)	96	85	45 (40)
Perennial Rye Grass (a)	98	90	35 (30)
Redtop	95	80	5 (5)
Alsike Clover	97	90(e)	5 (5)
		Total	90 (80)

a. Ryegrass shall be a certified fine–textured variety such as Pennfine, Fiesta, Yorktown, Diplomat, or equal.
b. Fescue varieties shall include – Creeping Red and/or Hard Reliant, Scaldis, Koket, or Jamestown.

4. Sodding – sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.C.S. Handbook. Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt), etc.

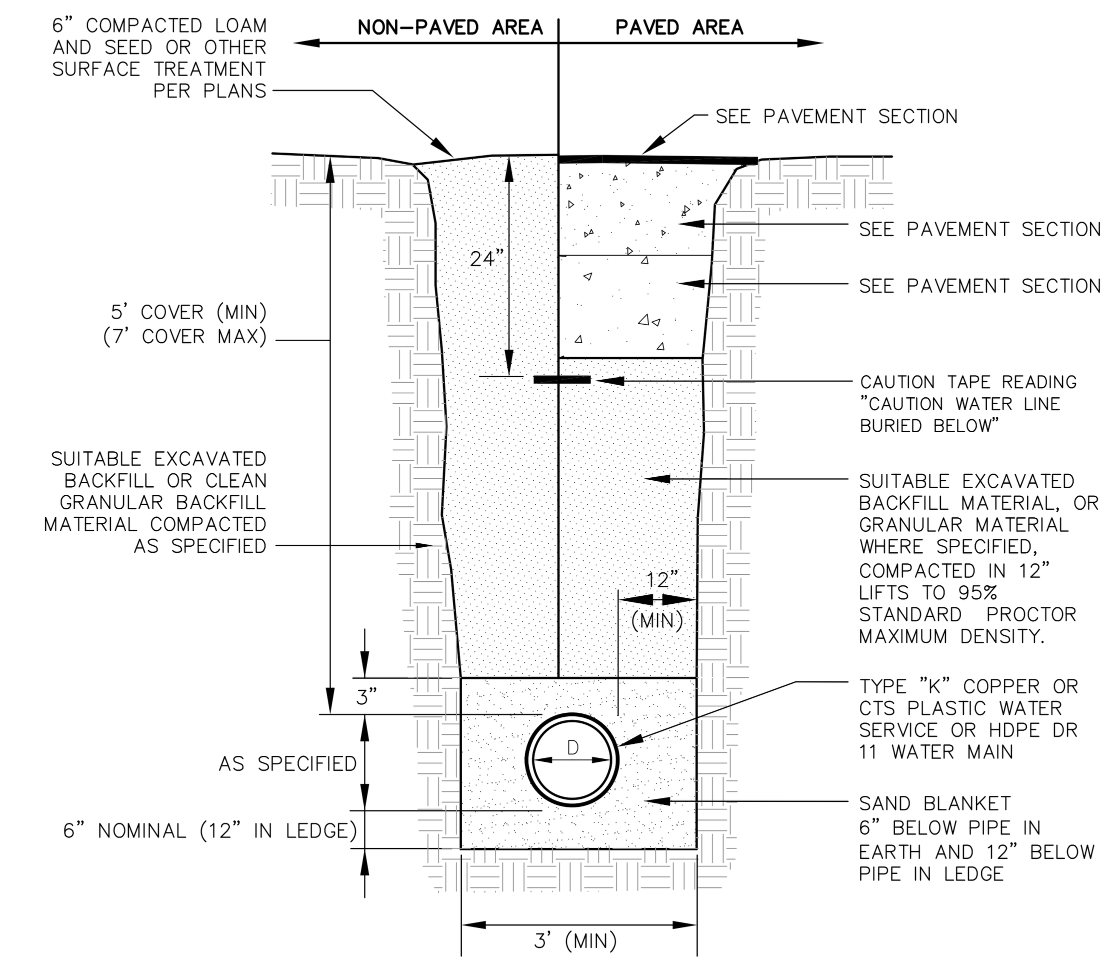
WINTER CONSTRUCTION NOTES

1. All proposed vegetated areas which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and elsewhere seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt events;
2. All ditches or swales which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions; and
3. After November 15th, incomplete road or parking surfaces where work has stopped for the winter season shall be protected with a minimum of 3 inches of crushed gravel per NHDOT Item 304.3.



NOTES:
1. SILTSOXX MAY BY USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
4. ALL SEDIMENT TRAPPED BY SILTSOXX SHALL BE DISPOSED OF PROPERLY.

TUBULAR SEDIMENT BARRIER — NOT TO SCALE

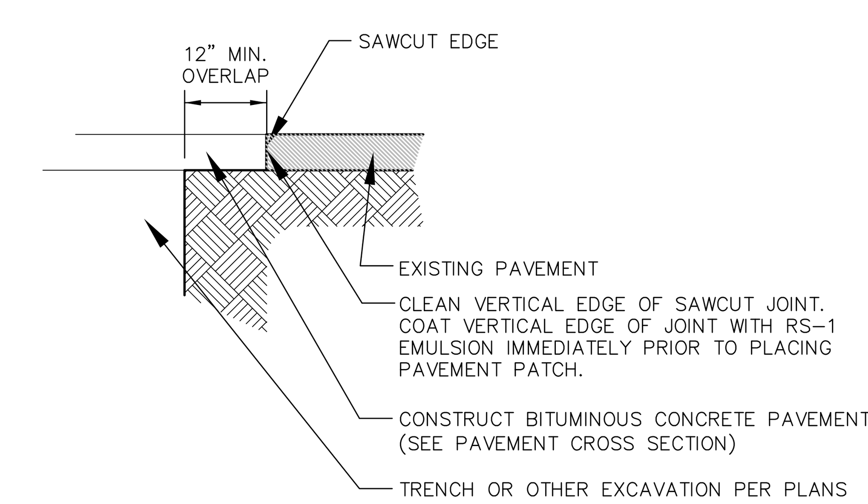


SAND BLANKET/BARRIER

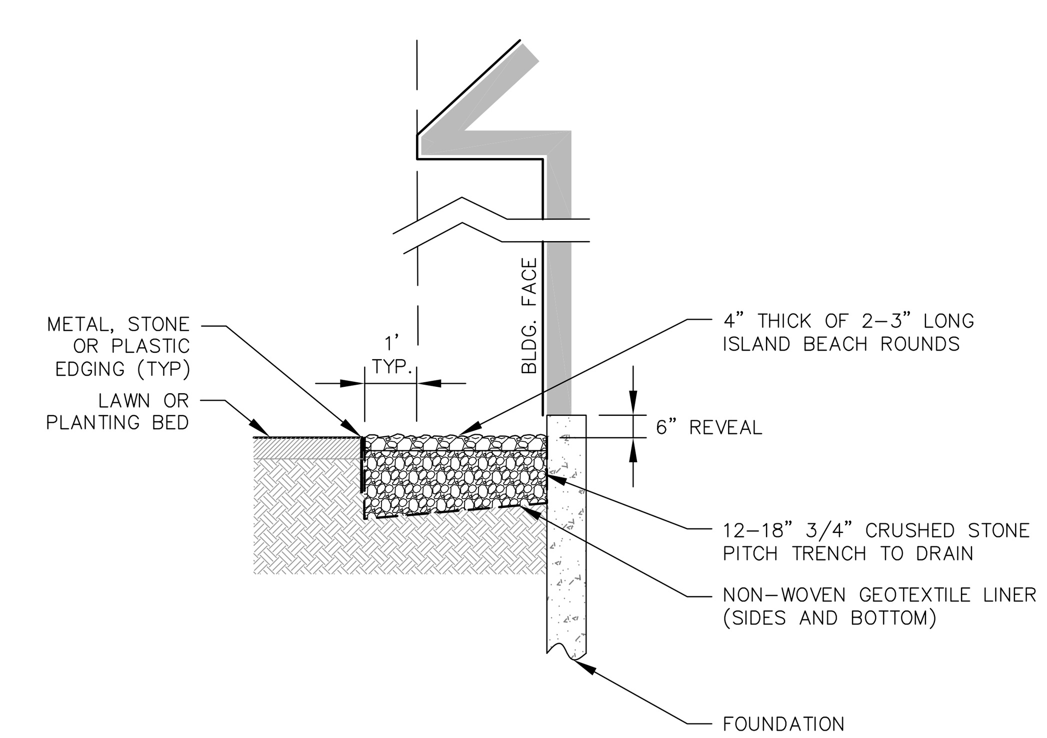
SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES
1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
2. ALL TRENCHING AND BACKFILL SHALL CONFORM WITH THE STANDARDS OF THE CITY OF PORTSMOUTH.

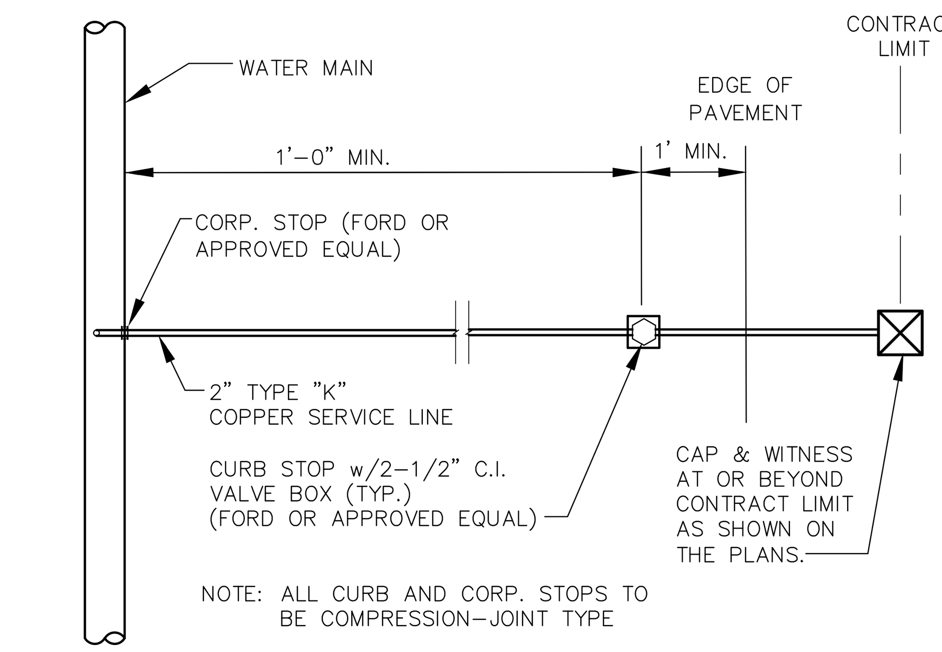
WATER MAIN TRENCH — NOT TO SCALE



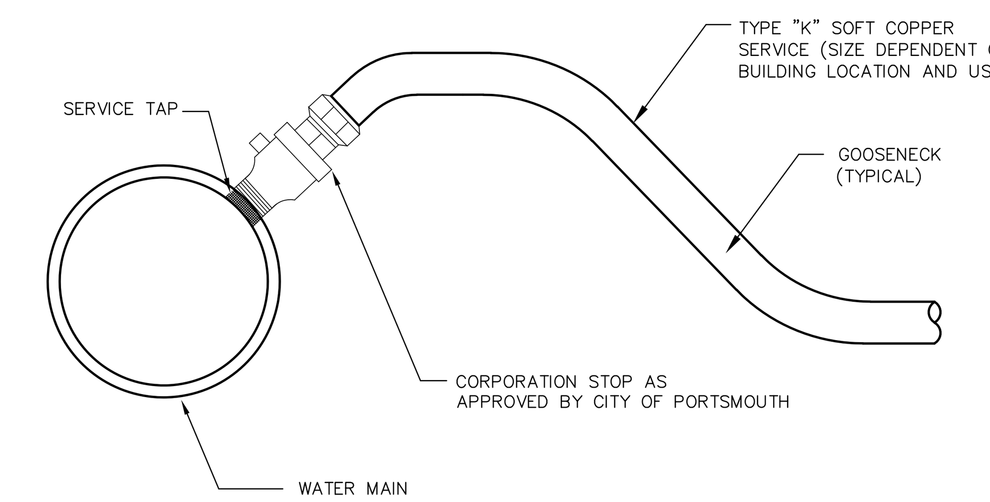
TYPICAL PAVEMENT SAWCUT — NOT TO SCALE



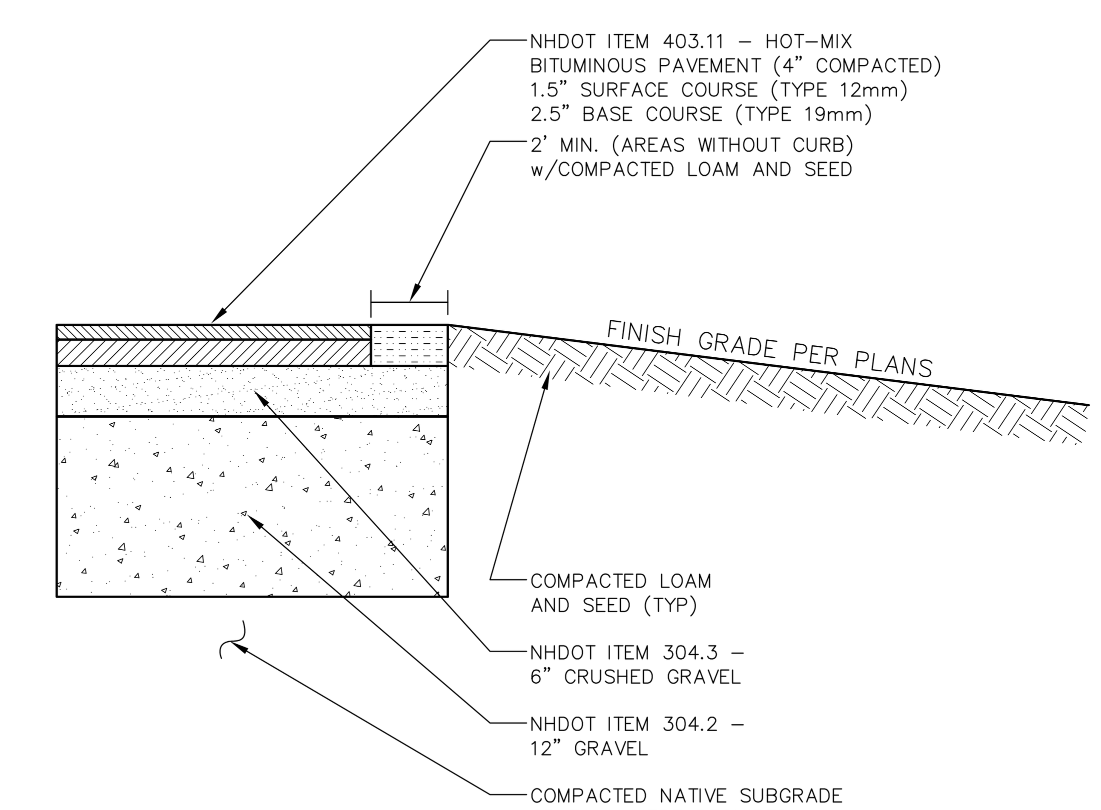
STONE DRIP EDGE — NOT TO SCALE



NOTE: ALL MATERIALS AND SPECIFICATIONS SHALL CONFORM TO CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS AND REQUIREMENTS. VERIFY PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES.



WATER SERVICE CONNECTION — NOT TO SCALE



NOTES
1. ALL EXISTING FILL, BURIED ORGANIC MATTER, CLAY, LOAM, MUCK, AND/OR OTHER QUESTIONABLE MATERIAL SHALL BE REMOVED TO AT LEAST 12" BELOW ALL UNDERGROUND PIPING/UTILITIES.
2. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
3. FILL BELOW PAVEMENT GRADES SHALL BE GRANULAR BORROW COMPACTED PER NHDOT REQUIREMENTS.
4. SITEWORK CONTRACTOR SHALL COORDINATE GEOTECHNICAL ENGINEERING INSPECTIONS WITH THE CONSTRUCTION MANAGER PRIOR TO PLACING GRAVELS.
5. TACK COAT SHALL BE APPLIED BETWEEN SUCCESSIVE LIFTS OF ASPHALT.
6. THE BITUMINOUS PAVEMENT SHALL BE COMPACTED TO 92 TO 97 PERCENT OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D–2041. THE BASE AND SUBBASE MATERIALS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THEIR MAXIMUM DRY DENSITIES AS DETERMINED BY ASTM D–1557.

PAVEMENT CROSS SECTION — NOT TO SCALE

ALTUS ENGINEERING
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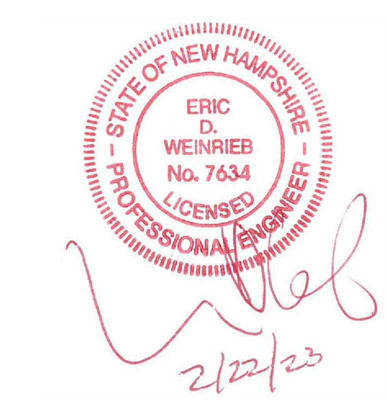

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TAX MAP 255 LOT 5
305 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801

TITLE:
DETAIL SHEET

SHEET NUMBER:
C-4

P5411

12/13/2022

Alcott (Reis Res)

1124.500 EL (12/13/2022)

Art Form Architecture, Inc.
603-431-9559

Front Elevation

Scale: 1/8" = 1'-0"

CRS 1124.500 EL Alcott

12/13/2022

Alcott (Reis Res)

1124.500 EL (12/13/2022)

Art Form Architecture, Inc.

603-431-9559

Right Elevation

Scale: 1/8" = 1'-0

CRS 1124.500 EL Alcott

12/13/2022

Alcott (Reis Res)

1124.500 EL (12/13/2022)

Art Form Architecture, Inc.
603-431-9559

Rear Elevation

Scale: 1/8" = 1'-0

CRS 1124.500 EL Alcott

12/13/2022

Alcott (Reis Res)

1124.500 EL (12/13/2022)

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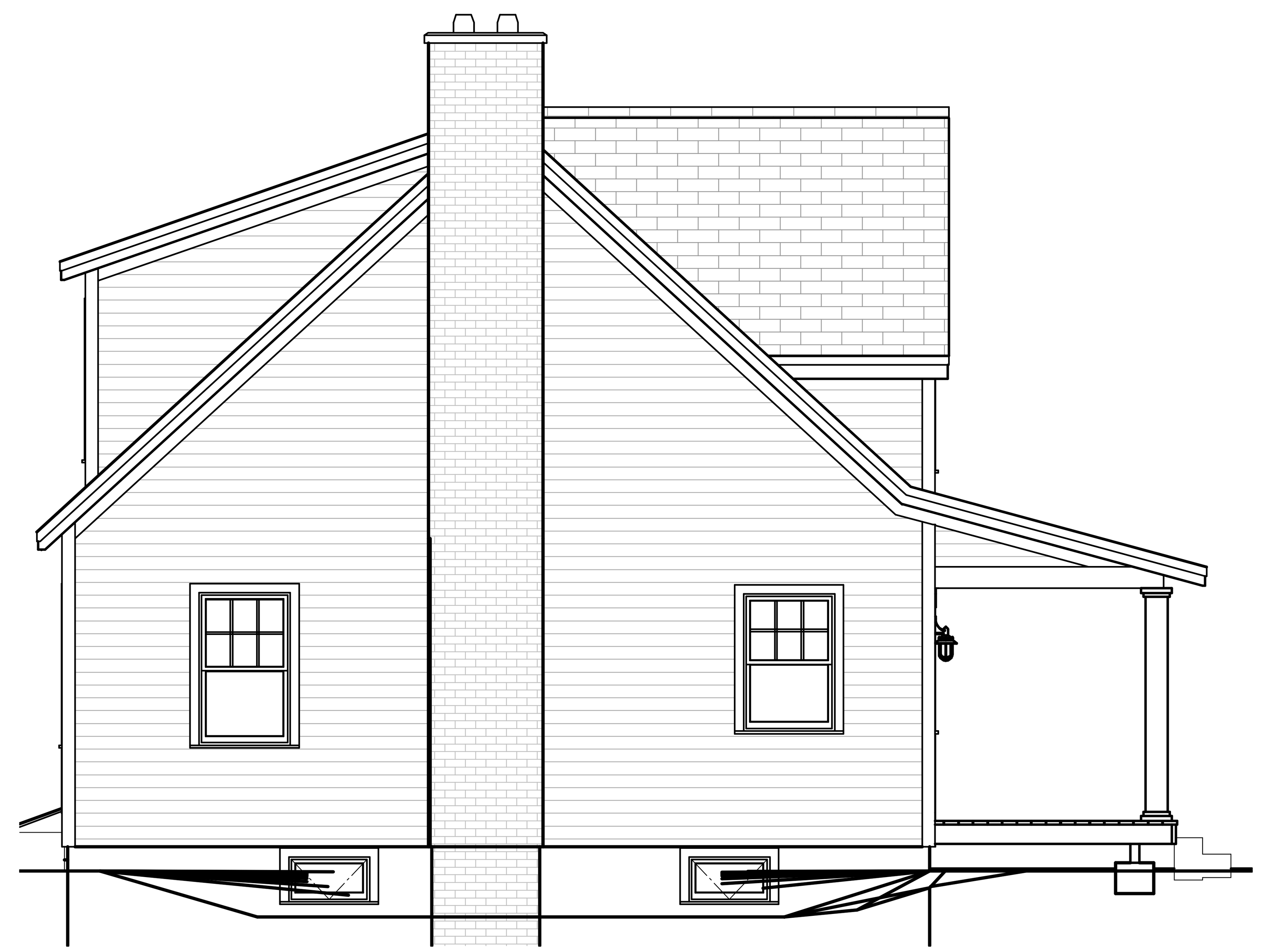
603-431-9559



Left Elevation

Scale: 1/8" = 1'-0

CRS 1124.500 EL Alcott

City of Portsmouth, New Hampshire

Site Plan Application Checklist

This site plan application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Planning Board review. The checklist is required to be completed and uploaded to the Site Plan application in the City's online permitting system. A pre-application conference with a member of the planning department is strongly encouraged as additional project information may be required depending on the size and scope. The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan review regulations for full details.

Applicant Responsibilities (Section 2.5.2): Applicable fees are due upon application submittal along with required attachments. The application shall be complete as submitted and provide adequate information for evaluation of the proposed site development. Waiver requests must be submitted in writing with appropriate justification.

Name of Applicant: Thomas E., Marybeth B., James B. and Meegan C. Reis Date Submitted: February 21, 2023

Application # (in City's online permitting): LU-23-

Site Address: 305 Peverly Hill Road Map: 255 Lot: 5

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
x	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**	Viewpoint	N/A
x	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. **(2.5.2.8)**	Viewpoint	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
X	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	Green Statement	
X	Existing and proposed gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. **(2.5.3.1C)**	Application, Sheet C-2	N/A
X	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	Sheets C-1 and C-2	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Cover Sheet, LOA	N/A
☒	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. **(2.5.3.1F)**	Abutters List	N/A
☒	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover Sheet	N/A
☒	List of reference plans. **(2.5.3.1H)**	Sheet C-1	N/A
☒	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Sheet C-3, Note #14	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. **(2.5.4.1A)**	Required on all plan sheets	N/A
☒	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☒	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	All relevant sheets	N/A
☒	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	Required on all plan sheets	N/A
☐	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	N/A (no wetlands present)	N/A
☒	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	All relevant sheets	N/A
☒	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	All relevant sheets	N/A
☒	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☒	Source and date of data displayed on the plan. **(2.5.4.2D)**	All relevant sheets	N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	Sheet C-1	
☒	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Sheet C-2 and Building Plans	
☒	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	Sheets C-1, C-2 & C-3	
☒	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	Sheet C-2, Note #4	
☒	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	Sheets C-2 & C-3	
☒	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	Sheet C-2	

☒	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	Sheet C-2 & C-3	
☒	**8. Solid Waste Facilities: (2.5.4.3H)**		
	• The size, type and location of solid waste facilities.	Sheet C-2, Note #14	
☐	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	N/A (none proposed) Sheet C-2 N/A (none proposed) N/A (none proposed)	
☐	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.		Waiver
☐	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**		Waiver
☐	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.		Waiver
☒	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	Sheets C-1 & C-2	
☒	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	Sheets C-1, C-2 & C-3	
☒	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	Deeds	
☐	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).	N/A (not in a character district)	
☐	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	N/A (not in a flood zone)	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	Traffic Memo	
☒	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Sheet C-2	
☒	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. **(7.3.1)**	Sheet C-2, Note 9	
☐	Stormwater Management and Erosion Control Plan. **(7.4)**		Waiver
☐	Inspection and Maintenance Plan **(7.6.5)**		Waiver

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**	Waiver Request N/A (none req.) N/A (none req.) Sheet C-2, Note 7 N/A (none req.) N/A (none req.)	
☐	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**	None requested	
☐	A document from each of the required private utility service providers indicating approval of the proposed site plan and indicating an ability to provide all required private utilities to the site. **(2.5.3.2D)**	N/A (site already served by utilities)	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	Cover Sheet	
☒	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." **(2.5.4.2E)**	Sheet C-2, Note 15	N/A
☐	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. **(2.5.4.2F)**	N/A (not in a flood zone)	
☒	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." **(2.13.3)**	Sheet C-2, Note 16 Sheet C-2, Note 17	N/A

Applicant's Signature: _[signature]_ **Date:** February 21, 2023

Erik Saari, Altus Engineering (Agent)