

PRELIMINARY AND FINAL SITE PLAN
FOR
BLOCK 484 LOT 19.01
201 WALNUT AVENUE
TOWNSHIP OF CRANFORD
UNION COUNTY, NEW JERSEY

GENERAL NOTES:

1. THE SUBJECT PROPERTY IS KNOWN AND DESIGNATED AS BLOCK 484, LOT 19.01 AS SHOWN ON THE CURRENT TAX ASSESSMENT MAP OF THE TOWNSHIP OF CRANFORD, SHEET NO. 107 AND IS SITUATED IN THE "D-T" (DOWNTOWN TRANSITION) ZONING DISTRICT, AND WITHIN SUBDISTRICT 2 OF THE SOUTH AVENUE & CHESTNUT STREET REDEVELOPMENT PLAN. THE SUBJECT PROPERTY CONTAINS A TOTAL OF 36,875 SF, ±0.847 ACRES.
2. OWNER & CO-APPLICANT: 201 WALNUT AVE LLC
C/O BRANDON K. BOFFARD, ESQ.
55 BLEEKER STREET, 2ND FLOOR
MILBURN, NEW JERSEY 07041
- CO-APPLICANT: IRON ORE PROPERTIES LLC
55 BLEEKER STREET, 2ND FLOOR
MILBURN, NEW JERSEY 07041
- I HEREBY CERTIFY THAT I AM THE OWNER OF RECORD OF THE PLAN HEREIN DEPICTED AND THAT I CONCUR WITH THE PLAN.

NJDEP ELECTRONIC APPROVAL STAMP

- OWNER & CO-APPLICANT, 201 WALNUT AVE LLC CO-APPLICANT, IRON ORE PROPERTIES LLC
3. EXISTING USE: MIXED COMMERCIAL USE PROPOSED USE: MULTI-FAMILY
4. BASE MAP INFORMATION WAS OBTAINED FROM THE FOLLOWING SOURCES:
- 4.1. TOPOGRAPHIC INFORMATION TAKEN FROM A PLAN ENTITLED "TOPOGRAPHIC SURVEY PREPARED FOR LOT 19.01, BLOCK 484 SITUATED IN THE TOWNSHIP OF CRANFORD, UNION COUNTY, NEW JERSEY" PREPARED BY DYKSTRA WALKER DESIGN GROUP.
- 4.2. ARCHITECTURAL FOOTPRINTS OBTAINED FROM A PLAN ENTITLED "RESIDENTIAL DEVELOPMENT 201 WALNUT AVENUE CRANFORD, NEW JERSEY" PREPARED BY BLACKBIRD GROUP ARCHITECTS, LLC, DATED OCTOBER 28, 2020
5. THE APPLICANT PROPOSES TO CONSTRUCT THIRTY FOUR (34) MARKET-RATE RESIDENTIAL UNITS TWO (2) COAH UNITS, AND THREE (3) SPECIAL NEEDS HOUSING UNITS.
6. AREA AND BULK ZONE REQUIREMENTS FOR SUBDISTRICT 2 OF THE SOUTH AVENUE & CHESTNUT STREET REDEVELOPMENT PLAN WITHIN THE D-T "DOWNTOWN TRANSITION DISTRICT"

	PERMITTED:	EXISTING:	PROPOSED:
MINIMUM LOT REQUIREMENTS			
MINIMUM LOT AREA	0.75 ACRES	0.85 ACRES	0.85 ACRES
PRINCIPAL BUILDING REQUIREMENTS			
MINIMUM FRONT YARD	10 FT. FROM CURB LINE	64.0 FT.	16.6± FT. (CHESTNUT AVE.)
MINIMUM SIDE YARD	9 FT. FROM CURB	206.6 FT. (HIGH STREET) 31.1 FT. (WALNUT AVE.)	23.0± FT. (HIGH STREET) 28.0± FT. (WALNUT AVE.)
MINIMUM REAR YARD	10 FT. BETWEEN BUILDINGS OR 15 FT. BETWEEN CURB OR PROPERTY LINE	9.8± FT.*	15.9± FT.
MAXIMUM BUILDING HEIGHT (MEASURED FROM GRADE PLANE)	45 FT. / 3 STORIES	±10 FT.	LESS THAN 45 FT. / 3 STORIES
MAXIMUM BUILDING COVERAGE	90%	3.4%	31.8% (GROUND FLOOR) 70.1% (ENTIRE BUILDING)
MAXIMUM LOT COVERAGE	95%	51.8%	87.06%

- * EXISTING VARIANCE
7. OFF-STREET PARKING REQUIREMENTS - USE: DWELLING, MULTI-FAMILY (NONE REQUIRED FOR SPECIAL NEEDS HOUSING UNITS)
- AUTOMOTIVE PARKING:**
- REQUIRED:**
1.4 SPACES PER UNIT X 36 UNITS = 50.4 OR 51 SPACES
AT LEAST 15% TO BE ELECTRIC VEHICLE MAKE-READY PARKING
SPACES = 7.65 OR 8.
- PROVIDED:**
53 PARKING SPACES
2 ADA PARKING SPACES
+ 2 STREET PARKING ON CHESTNUT AVE.
TOTAL 57 PARKING SPACES, INCLUDING 10 ELECTRIC
VEHICLE MAKE-READY PARKING SPACES,
+ 5 EV READY PARKING SPACE CREDIT
- BICYCLE PARKING:**
- REQUIRED:**
COVERED : 0.25 SPACES PER UNIT X 36 UNITS = 9
OUTDOOR : 0.10 SPACES PER UNIT X 36 UNITS = 3.6 = 4
8. 1,547 SF OF PRIVATELY-OWNED PUBLIC OPEN SPACE HAS BEEN PROVIDED BETWEEN SUBDISTRICT 1 AND 2
9. ALL PROPOSED UTILITIES OTHER THAN ELECTRIC SERVICE SHALL BE INSTALLED UNDERGROUND.
10. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWNSHIP OF CRANFORD DESIGN STANDARDS AND DETAILS.
11. TRASH AND RECYCLING DISPOSAL SHALL BE IN ACCORDANCE WITH THE TOWNSHIP OF CRANFORD DEPARTMENT OF PUBLIC UTILITIES REQUIREMENTS.
12. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED ON THE DRAWINGS AND EACH DRAWING HAS BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION".
13. ALL DESIGN FEATURES DEPICTED HEREON WERE BASED ON CONSTRAINTS AND REGULATIONS IN EFFECT AT THE TIME OF PREPARATION AND INITIAL PRESENTATION OF THIS PLAN. ALL CURRENT DEVELOPMENT CONSTRAINTS SHOULD BE INVESTIGATED PRIOR TO COMMENCEMENT OF ANY ACTIVITY BASED ON THIS PLAN.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITY COMPANIES FOR GAS, ELECTRIC, PHONE AND CABLE TV SERVICE LOCATIONS. LOCATION OF UTILITIES AS SHOWN ON THESE PLANS ARE PLOTTED FROM AVAILABLE DATA ON FILE WITH THE UTILITY COMPANIES AND IS NOT GUARANTEED AS TO EXACTNESS. THE CONTRACTOR IS TO CONTACT UTILITY COMPANIES 72 HOURS PRIOR TO CONSTRUCTION TO DETERMINE EXACT LOCATION. THE CONTRACTOR SHALL USE THE UTILITY LOCATIONS SHOWN AS AN AID IN DETERMINING EXACT LOCATIONS. THE CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATIONS PRIOR TO PERFORMING ANY CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL DAMAGES ASSOCIATED WITH THE UTILITIES. ALL REPAIRS SHALL BE TO THE SATISFACTION OF THE AGENCIES GOVERNING THOSE UTILITIES.
15. ANY CONFLICTS ENCOUNTERED WITH EXISTING UTILITIES MUST BE ADDRESSED. COORDINATE RELOCATION WITH RESPECTIVE UTILITY COMPANY.
16. ANY IMPORTED FILL SHALL MEET THE DEFINITION OF CLEAN FILL, PURSUANT TO THE TECHNICAL REQUIREMENTS FOR SITE REMEDIATION (NJAC 7:26E-1.8).
17. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING ANY AREA THAT HE/SHE DISTURBED BEYOND THE PROPERTY LIMITS TO ITS ORIGINAL CONDITION.
18. CONTRACTOR TO PROVIDE NECESSARY FOUNDATION DRAINS AND WATER-PROOFING AROUND FOUNDATION, INCLUDING BUT NOT LIMITED TO ELEVATOR PITS. COORDINATE WITH ARCHITECT AS REQUIRED.
19. TEST PIT EXCAVATION WAS PERFORMED BY FRENCH AND PARRELLO ASSOCIATES ON JANUARY 27, 2021. THE ELEVATION OF THE ESTIMATED SEASONAL HIGH WATER TABLE WAS ESTIMATED TO BE 57.5 AS INDICATED ON THE SOIL BORING LOG SHEET.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ANY ROAD OPENING PERMITS THAT MAY BE REQUIRED FOR THE INSTALLATION OF NEW UTILITY SERVICES OR DRIVEWAY OPENINGS.
21. REFER TO THE SOIL EROSION AND SEDIMENT CONTROL PLAN AND PERMIT FOR REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES.
22. NO SOIL SHALL BE REMOVED FROM THE SITE WITHOUT WRITTEN APPROVAL FORM THE TOWNSHIP ENGINEER
23. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE. NO MATERIAL IS TO BE STORED ON TOWNSHIP PROPERTY UNLESS PRIOR APPROVAL IS OBTAINED FROM THE TOWNSHIP ENGINEER. UNDER NO CIRCUMSTANCES CAN THE CONTRACTOR PLACE EXCAVATED MATERIAL WITHIN TOWNSHIP-OWNED PROPERTY. ANY SOIL DISTURBANCE SHALL BE DONE AS SET FORTH BY SUBSECTION 351.

SHEET INDEX			
SHEET NUMBER	SHEET TITLE	DATE	REVISION DATE
1	COVER SHEET	1/29/2021	11/09/2022
2	EXISTING CONDITIONS PLAN	1/29/2021	11/09/2022
3	SITE PLAN	1/29/2021	11/09/2022
4	GRADING AND DRAINAGE PLAN	1/29/2021	11/09/2022
5	SOIL EROSION AND SEDIMENT CONTROL PLAN	1/29/2021	11/09/2022
6	SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	1/29/2021	11/09/2022
7	LANDSCAPING PLAN	1/29/2021	11/09/2022
8	LANDSCAPING NOTES AND DETAILS	1/29/2021	11/09/2022
9	LIGHTING PLAN	1/29/2021	11/09/2022
10	CONSTRUCTION DETAILS	1/29/2021	11/09/2022
11	CONSTRUCTION DETAILS	1/29/2021	11/09/2022
12	CONSTRUCTION DETAILS	1/29/2021	11/09/2022

PROPERTY OWNERS WITHIN 200 FEET OF SUBJECT PROPERTY (BLOCK 484 LOT 19.01):
PROPERTY OWNERS WITHIN 200 FEET OF BLOCK 484 LOT 19.01, LIST HAS BEEN PREPARED BY BRYAN FLINN, ASSESSOR - TOWNSHIP OF CRANFORD DATED MARCH 21, 2022

BLOCK	LOT	PROPERTY OWNER	PROPERTY LOCATION
478	08	ORFD Cong. of Jehovahs Wlt. 77 Chestnut Street Cranford, New Jersey 07016	77 Chestnut Street
478	07	St Marks Ame Church 34 High Street Cranford, New Jersey 07016	34 High Street
485	23	Lee, Brian and Melissa G. 206 Walnut Avenue Cranford, New Jersey 07016	206 Walnut Avenue
484	16	Capace, Victoria G. & Harkin, Thomas 209 Walnut Avenue Cranford, New Jersey 07016	209 Walnut Avenue
484	22	First Baptist Church of Cranford 100 High Street Cranford, New Jersey 07016	100 High Street
477	08	Pignatelli, Charles and Carol R. 347 New Providence Road Mountainside, New Jersey 07092	120 Walnut Avenue
477	06	116 Walnut Avenue, LLC. 208 Avenue F Matamoras, Pennsylvania 18336	116 Walnut Avenue
484	21	First Baptist Church of Cranford 100 High Street Cranford, New Jersey 07016	98 High Street
484	18	Mazza, Barry and Elizabeth 205 Walnut Avenue Cranford, New Jersey 07016	205 Walnut Avenue
478	10.01	DB Walnut Ave LLC. 55 Bleeker Street, 2nd floor Milburn, New Jersey 07041	109 Walnut Avenue
477	07	Cohen: Yvette Revocable Trust 188 Temple Avenue Boynton Beach, Florida 33436	118 Walnut Avenue
478	09	Union County Economic Dev. Corp 75 Chestnut Street Cranford, New Jersey 07016	75 Chestnut Street
484	23	106 HSC, LLC PO Box 253 Short Hills, New Jersey 07078	106 High Street
484	17	Corigliano Homes, LLC. 6 Millbrook Drive Toms River, New Jersey 08757	207 Walnut Avenue
485	25	Oglethorpe: Annmarie Buontempo 1232 Ridgion Drive Savannah, Georgia 31406	210 Walnut Avenue
485	26	Kirkman: Kent Randolph 212 Walnut Avenue Cranford, New Jersey 07016	212 Walnut Avenue
484	15	Della Serra: Asphina 441 Manor Avenue Cranford, New Jersey 07016	211 Walnut Avenue
485	24	Bonic, Ljubo 204 Hawthorne Drive Clark, New Jersey 07066	208 Walnut Avenue
485	22	Callahan, Jill & Galati, Marie 204 Walnut Avenue Cranford, New Jersey 07016	204 Walnut Avenue
485	21	Renna: Joseph and Tina 202 Walnut Avenue Cranford, New Jersey 07016	202 Walnut Avenue

PUBLIC UTILITIES AND/OR CABLE COMPANY
WITHIN 200 FEET OF SUBJECT PROPERTIES:

Verizon
Executive Offices
Attn: Corporate Secretary
1 Verizon Way
Basking Ridge, New Jersey 07920

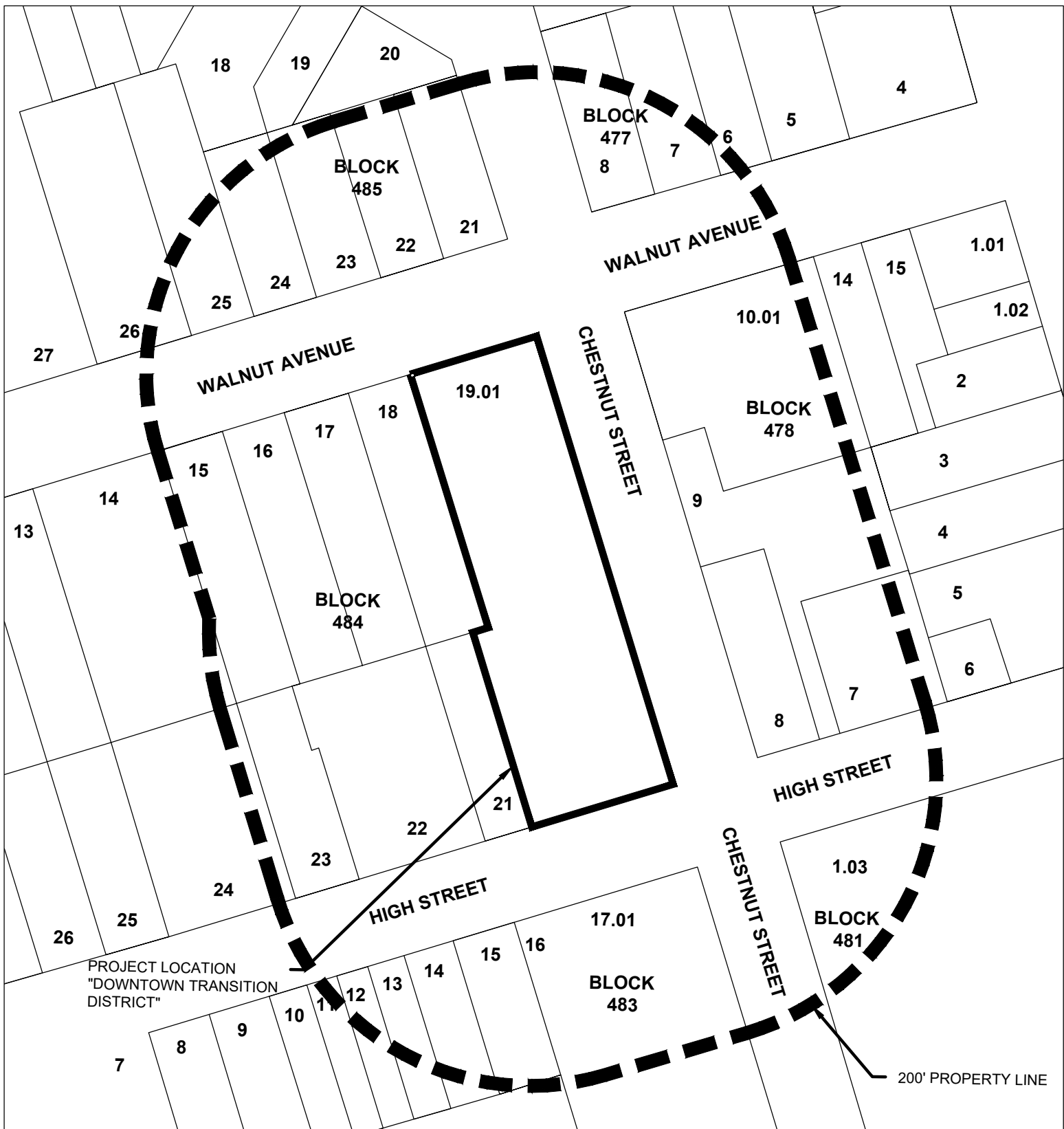
Elizabeth Gas Company
Engineering Department
520 Green Lane
Union, New Jersey 07083

PSE&G Company
Manager - Corporate Properties
80 Park Plaza, 16B
Newark, New Jersey 07101

Comcast Cablevision
C/O - Corporation Trust Co.
820 Bear Tavern Road
West Trenton, New Jersey 08628

New Jersey American Water, Inc.
Attn: GIS Supervisor
1025 Laurel Oak Road
Voorhees, New Jersey 08628

Rahway Valley Sewerage Authority
Attn: Chief Engineering
1050 East Hazlewood Avenue
Rahway, New Jersey 07065



KEY MAP
NOT TO SCALE

I HAVE CAREFULLY EXAMINED THIS MAP AND FIND IT CONFORMS TO THE PROVISIONS OF THE MAP FILING LAW AND MUNICIPAL ORDINANCES AND REQUIREMENTS THERETO

TOWNSHIP ENGINEER (AFFIX SEAL)

DATE

THIS APPLICATION NO. _____ IS APPROVED BY THE CRANFORD TOWNSHIP PLANNING BOARD AS A MAJOR DEVELOPMENT

CHAIRPERSON

DATE

SECRETARY

DATE

9	11/09/2022	REVISED PER PLANNING BOARD REVIEW LETTERS	MS	BF
8	09/08/2022	REVISED PER TOWNSHIP DRC MEETING		BF
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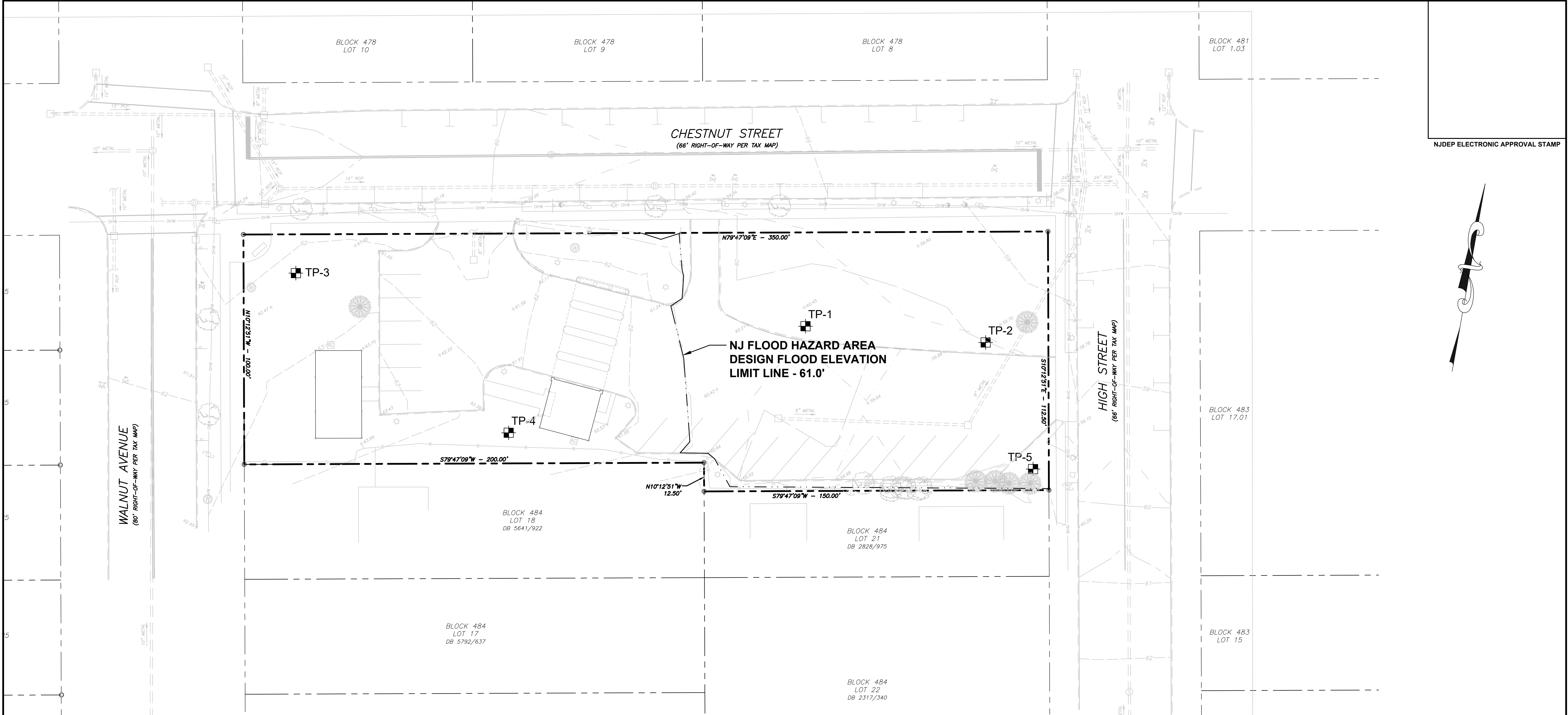
SCALE IN FEET



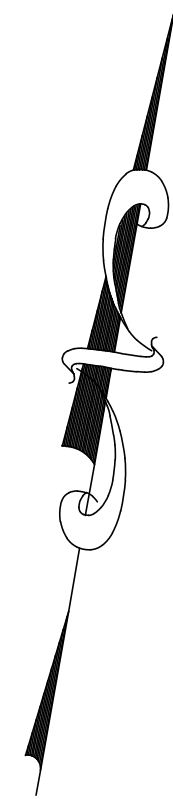
BAHRAM FARZANEH, PE, PP
PROFESSIONAL ENGINEER, NJ LIC. NO. 24GE03454800

COVER SHEET
FOR
PRELIMINARY AND FINAL SITE PLAN
FOR
201 WALNUT AVENUE
BLOCK 484 LOT 19.01
TOWNSHIP OF CRANFORD
UNION COUNTY NEW JERSEY

DATE: 1/29/2021	DESIGNED BY: KDW	SCALE: AS SHOWN	PROJECT NUMBER: 16377.001
DRAWN BY: KDW	CHECKED BY: BF	FIELD BOOK	SHEET: 1 of 12



NJDEP ELECTRONIC APPROVAL STAMP



GENERAL NOTES:

1. SITE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR FOR THE DURATION OF THE DEMOLITION PROJECT. ALL PERSONNEL WORKING OR VISITING THE SITE SHALL BE PROVIDED A PROJECT SAFETY BRIEFING. THE CONTRACTOR SHALL DESIGNATE A TRAINED, RESPONSIBLE INDIVIDUAL FOR ALL SAFETY RELATED ITEMS. THIS PERSON SHALL HAVE THE AUTHORITY TO SUSPEND WORK SHOULD AN UNSAFE CONDITION BE ENCOUNTERED.
2. THE CONTRACTOR SHALL ERECT AND MAINTAIN FENCING AROUND THE PERIMETER OF THE WORK AREAS. AN EIGHT FOOT HIGH CHAIN LINK FENCE SHALL BE USED. DURING THE DEMOLITION OPERATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTING THE PERIMETER FENCING, LOCATED ALONG THE LIMITS OF EACH DESIGNATED DEMOLITION AREA AND SHALL REPLACE ANY DAMAGED SECTIONS TO THE SATISFACTION OF THE OWNER.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TEMPORARY OFFICE TRAILERS, ON-SITE DECONTAMINATION AREAS, DISPOSAL CONTAINERS AND ALL OTHER ITEMS AS MAY BE REQUIRED TO PERFORM HIS ACTIVITIES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
4. THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL NECESSARY PERMITS AND LICENSES REQUIRED TO CARRY OUT HIS WORK IN FULL ACCORDANCE WITH REQUIREMENTS OF ALL REGULATIONS AND AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS AND ALL CODES, RULES AND REGULATIONS OF HEALTH, PUBLIC OR OTHER AUTHORITY CONTROLLING OR LIMITING THE METHODS, MATERIAL TO BE USED, OR THE ACTIONS OF OF THOSE EMPLOYED IN WORK OF THIS KIND. ALL WORK, LABOR OR MATERIAL NECESSARY TO COMPLY WITH THESE LAWS, CODES, RULES AND REGULATIONS SHALL BE PERFORMED AND FURNISHED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FERTILIZING AND SEEDING ALL AREAS DISTURBED BY HIS/HER ACTIVITIES WITHIN THE LIMITS OF THE PROJECT SITE. ROAD PAVEMENT REPLACEMENT AND ALL OTHER RESTORATION WORK WITHIN THE CITY OF PATERSON RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF THE CITY ENGINEER.
6. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL NECESSARY EQUIPMENT AND METHODS TO KEEP EXCAVATIONS FREE OF WATER AND PROTECT WORK AND ADJACENT STRUCTURES FROM DAMAGE BY WATER DURING ALL STAGES OF HIS/HER ACTIVITIES.

UTILITY NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITY COMPANIES PRIOR TO DEMOLITION OR CONSTRUCTION ACTIVITIES TO DETERMINE THE EXACT LOCATIONS AS NECESSARY AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. UTILITY LOCATIONS SHOWN ON THESE PLANS ARE FROM ABOVE-GROUND OBSERVATIONS AND FROM RECORD INFORMATION PROVIDED BY THE UTILITY COMPANIES. IN ADDITION, THE LOCATION AND TYPE OF THE EXISTING UTILITIES SHOWN ON THESE PLANS IS NOT GUARANTEED TO BE ACCURATE NOR ALL INCLUSIVE. THE CONTRACTOR SHALL USE THE EXISTING UTILITY LOCATIONS SHOWN AS AN AID IN DETERMINING EXACT LOCATIONS. THE CONTRACTOR MUST CONTACT THE "ONE CALL SYSTEM" AT 1-800-272-1000 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION, SCHEDULING AND ALL COSTS REQUIRED TO CAP, DISCONNECT AND REMOVE THE UTILITIES. IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY AGENCY OR THE AUTHORITY HAVING JURISDICTION. IN ADDITION, IF ANY EXISTING IMPROVEMENTS LOCATED WITHIN THE BOROUGH RIGHT-OF-WAY ARE DISTURBED BY THE CONTRACTOR OR THE UTILITY COMPANIES, THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF THE IMPROVEMENTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE BOROUGH ENGINEER. THE CONTRACTOR SHALL CALL THE PSE&G DEMOLITION CENTER AT 1-800-817-3366 TO SCHEDULE THE INDIVIDUAL METER REMOVAL AND CUTTING OF SERVICE LINES FOR EACH STRUCTURE THAT IS TO BE DEMOLISHED. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS REQUIRED BY THE BOROUGH OF SAYREVILLE BUILDING BUREAU FOR THIS WORK, INCLUDING LETTERS FROM THE WATER, GAS AND ELECTRICAL COMPANIES, WHICH INDICATES ALL UTILITIES TO BE REMOVED ARE CLEARED FOR DEMOLITION AND/OR EXCAVATION.
3. IF ANY UTILITY FACILITIES, INCLUDING DISTRIBUTION MAINS OR SERVICES FOR ADJACENT PROPERTIES, ARE DISRUPTED OR DAMAGED DURING THE CONSTRUCTION WORK ASSOCIATED WITH THIS PROJECT, THEN THE CONTRACTOR IS RESPONSIBLE FOR RESTORING THE UTILITY FACILITIES BY THE END OF THE WORKING DAY AT NO ADDITIONAL EXPENSE TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COSTS INCURRED TO REMOVE OR TEMPORARILY SUPPORT
4. ANY UTILITY POLE AND/OR GUY ANCHORS THAT MAY BE IN CONFLICT WITH HIS ACTIVITIES. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING FACILITIES FROM THESE POLES, INCLUDING ALL LIGHTS, ELECTRICAL LINES, TELEPHONE LINES, CABLE LINES AND ALL ELSE AS REQUIRED TO REMOVE THE UTILITY POLES OR GUY ANCHORS. THE CONTRACTOR SHALL COORDINATE WITH THE RESPECTIVE UTILITY COMPANIES FOR THE REMOVAL OF ANY EXISTING FACILITIES THAT ARE NOT PRIVATELY OWNED.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION, INSTALLATION AND SUPPLY OF ANY UTILITY SERVICE REQUIRED FOR THIS PROJECT INCLUDING TEMPORARY POWER AND TELEPHONE SERVICES. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THIS PROJECT.

TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR IS RESPONSIBLE TO INSURE THE SAFE, ORDERLY AND EXPEDITIOUS CIRCULATION OF VEHICULAR AND PEDESTRIAN TRAFFIC FLOW AT ALL TIMES. THE CONTRACTOR SHALL MAINTAIN A MINIMUM 12 FEET WIDE TRAVEL LANE FOR EACH DIRECTION OF TRAFFIC FLOW ALONG THE ADJACENT ROADWAYS, AT ALL TIMES DURING HIS/HER CONSTRUCTION ACTIVITIES, TO ALLOW LOCAL AND EMERGENCY TRAFFIC ACCESS.
2. WATCHMEN AND FLAGMEN SHALL BE EMPLOYED BY THE CONTRACTOR FOR THE PROTECTION OF ANY EQUIPMENT ENTERING, LEAVING OR CROSSING ACTIVE TRAFFIC LANES, OR AS MAY BE REQUIRED FOR ROUTING OF ANY TRAFFIC AROUND OR THROUGH THE CONSTRUCTION. WATCHMEN AND FLAGMEN WILL BE EMPLOYED BY THE CONTRACTOR AT HIS OWN EXPENSE.
3. BEFORE BEGINNING WORK ON ANY STAGE OF THE PROJECT, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL WARNING SIGNS, BARRICADES, TRAFFIC GUIDES, LIGHTS, SAFETY CONES AND OTHER DEVICES AS NECESSARY TO PROTECT THE PUBLIC DURING THAT PHASE OF HIS OPERATIONS. IN ADDITION, THE CONTRACTOR MUST NOTIFY ANY TENANTS OR PROPERTY OWNERS AT LEAST ONE WEEK PRIOR TO ANY ACTIVITIES THAT MAY EFFECT EXISTING OFF-STREET PARKING AND/OR THE FLOW OF TRAFFIC.
4. ALL NECESSARY REGULATORY AND WARNING SIGNS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LAST REVISED AND SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.

LEGEND

TP-# TEST PIT LOCATION

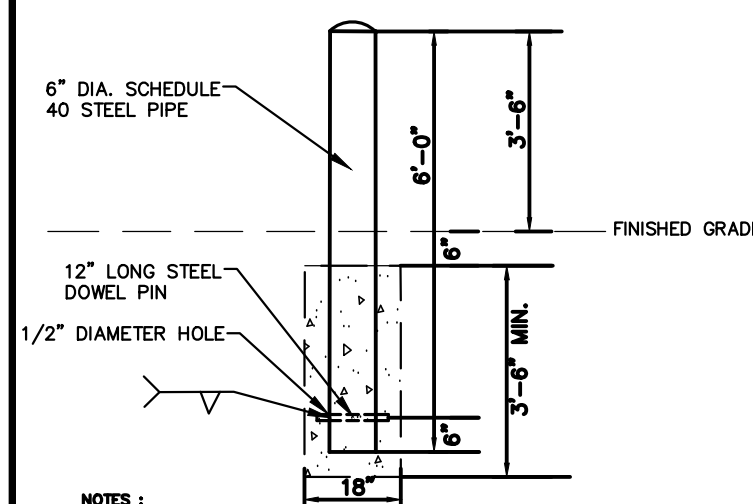
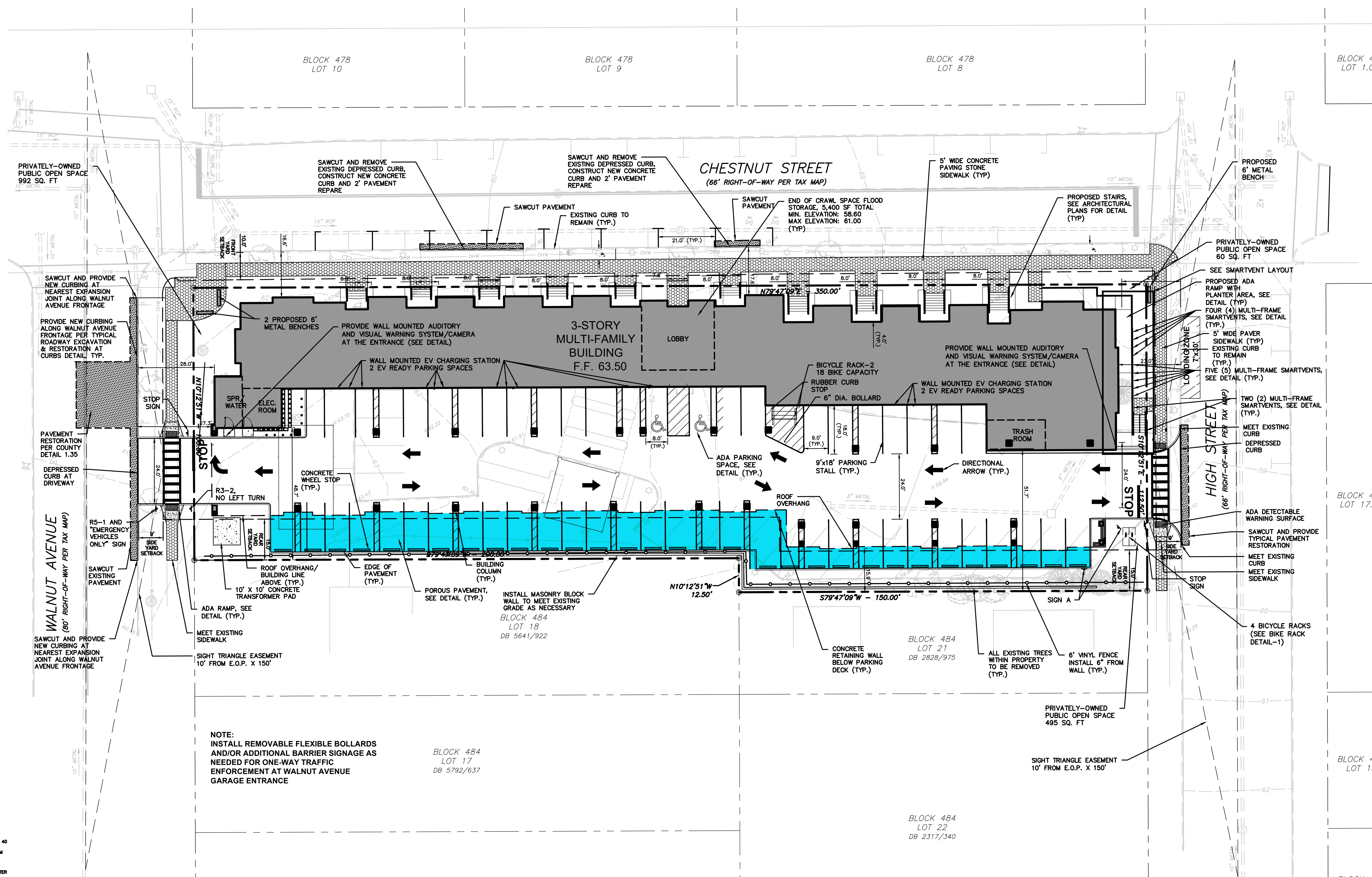
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BAHRAM FARZANEH, PE, PP
PROFESSIONAL ENGINEER, NJ LIC. No. 24GE03454800

EXISTING CONDITIONS PLAN
FOR
PRELIMINARY AND FINAL SITE PLAN
FOR
201 WALNUT AVENUE
BLOCK 484 LOT 19.01
TOWNSHIP OF CRANFORD
UNION COUNTY NEW JERSEY

DATE: 1/29/2021	DESIGNED BY: XXX	SCALE: 1" = 20'	PROJECT NUMBER: 16377.001
DRAWN BY: XXX	CHECKED BY: BF	FIELD BOOK	SHEET: 2 of 12



- MOHS: 18"
1. CUSTOM FABRICATED UTILITY PIPE BOLLARD CONSISTING OF LENGTH OF 6' DIA. SCHEDULE 40 STEEL PIPE. PROVIDE AT PARKING LOT AND SERVICE AREA DRIVE.
 2. PROVIDE STEEL PIPES 6'-4" LONG OVERALL, WITH TWO 6" DIA. HOLES DRILLED 8" IN THE BOTTOM AND 4" IN THE TOP. ATTACH TO UTILITY PIPE WITH 2" WALLS EXPLODED PORTION OF BOLLARD SHALL BE 3'-8" ABOVE ADJACENT FINISH GRADE. ALL PIPE COATING SHALL BE 100% SOLID EPOXY.
 3. DOME CONCRETE SURFACE ABOVE THE TOP OF THE PIPE, FINISH NEATLY TO PREVENT WATER RUNOFF.
 4. PROVIDE 18" DIA. 3'-8" DEEP CONCRETE FOOTING AT EACH UTILITY BOLLARD LOCATION. RECESS FOOTING TOP A MINIMUM OF 6" BELOW ADJACENT CONCRETE SIDEWALK OR ASPHALT DRIVE.
 5. APPLY GROUT GRANULATING AND TWO FULL WET SHOP APPLIED COATS OF MILK PRIMER TO EXPOSED STEEL SURFACES.
 6. PRIMER BASES OF DESIGN: KYLON KULLCOG GALVANIZED METAL, PRIMER.
 7. TOP COAT COLOR: OFF-WHITE OR OFF-WHITE/EXTERIOR GLOSS ENAMEL AFTER INSTALLATION AND CONCRETE FINISH.
 8. TOP COAT COLOR: FEDERAL SPEC. 5970C YELLOW GLOSS ENAMEL EXCEPT AT HANDICAP PARKING LOCATION.

METAL BOLLARD DETAIL
NOT TO SCALE

CAR COMING KIT

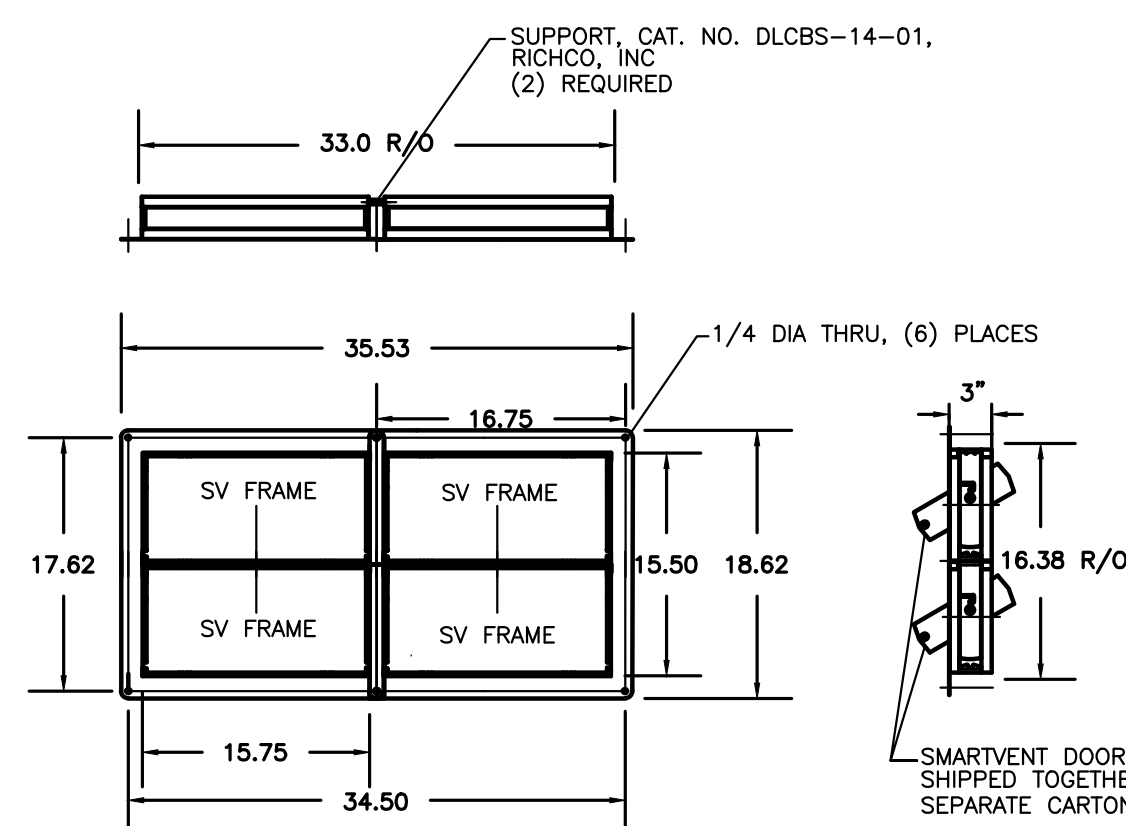
Wall Mount • 40" X 10" • 2-sided



CAR WARNING KIT
[HTTPS://PASSSIGNS.COM/WARNING-SIGNS/CAR-COMING-SIGN](https://PASSSIGNS.COM/WARNING-SIGNS/CAR-COMING-SIGN) OR APPROVED EQUAL

AUDIO VISUAL WARNING SYSTEM

NOT TO SCALE



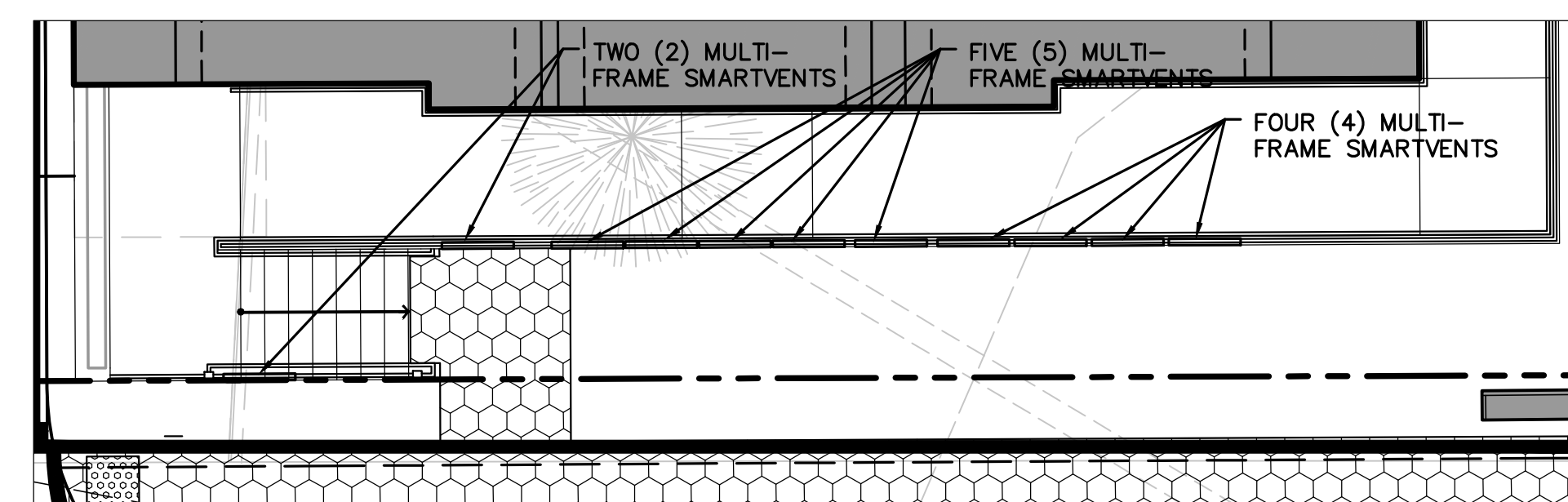
Flood Coverage - 800 sq. ft.
Air Ventilation - 204 sq. in.
Rough Opening - 33" x 16 3/8"
Vent Size - 32 1/2" W x 16" H x

FLOOD VENTS
SMART VENT 2x2 MULTI-FRAME

NOT TO SCALE

FLOOD VENT CALCULATIONS:

CRAWL SPACE FLOOD STORAGE AREA: 8,577 SF
SMART VENT 2X2 MULTI-FRAME CAPACITY: 800 SF; 11 PROPOSED
FLOOD COVERAGE PROVIDED: 8,800 SF



SMARTVENT LAYOUT

SCALE: 1" = 6'

NOTE:

- 1. NO BASEMENT IS PROPOSED**
- 2. TRASH ROOM IS PROVIDED INSIDE THE PROPOSED BUILDING**

9	11/09/2022	REVISED PER PLANNING BOARD REVIEW LETTERS	MS	BF
8	09/08/2022	REVISED PER TOWNSHIP DRC MEETING	SP	BF
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2	4/30/2021	REVISED PER NUDEP COMMENTS	MS	BF
1	4/28/2021	REVISED PER NUDEP COMMENTS	SP	MS
No.	Date	Revision	Revised By	Checked By

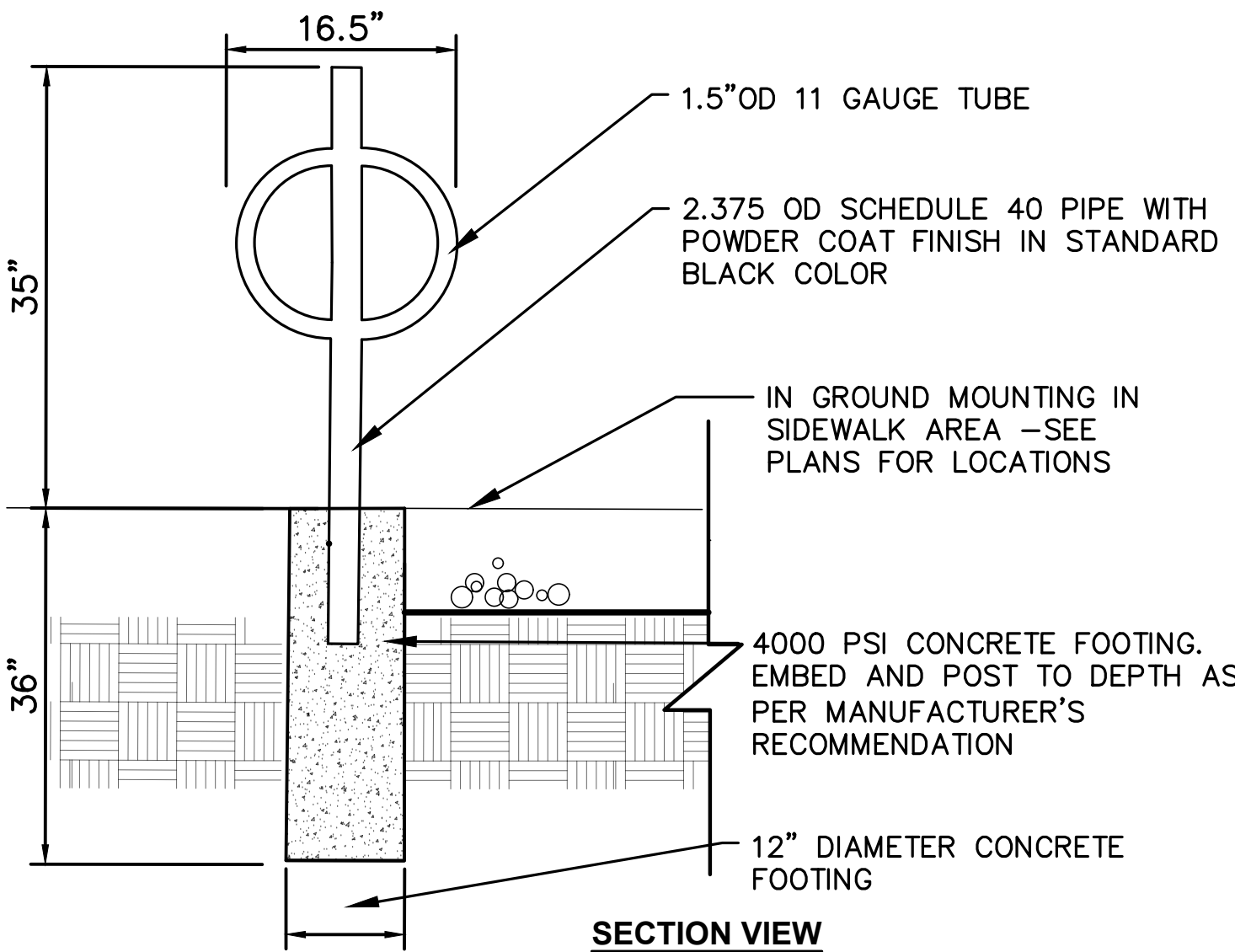


BAHRAM FARZANEH, PE, PP
PROFESSIONAL ENGINEER, NJ LIC. No. 24GE03454800

**SITE PLAN
FOR
PRELIMINARY AND FINAL SITE PLAN
FOR
201 WALNUT AVENUE
BLOCK 484 LOT 19.01
TOWNSHIP OF CRANFORD
UNION COUNTY NEW JERSEY**

DATE: 1/29/2021	DESIGNED BY: MS	SCALE: 1" = 20'	PROJECT NUMBER: 16377.001
DRAWN BY:	CHECKED BY: BF	FIELD BOOK	SHEET: 3 of 12

0: 16X\16300\16377 - 201 Walnut Ave\16377.001 - 201 Walnut Ave\CADD\DWG\16377.001 - SP.dwg OR



NOTES:

- 2-BIKE HITCH POST STEEL BIKE RACK SHALL BE MANUFACTURED BY DERO, A PLAYCORE COMPANY, MINNEAPOLIS, MN OR APPROVED EQUAL (WWW.DERO.COM) CONTACT: BEN CRAMER 1-917-463-3769
- FINISH SHALL BE POWDER COAT IN STANDARD BLACK COLOR.
- BIKE RACKS SHALL BE INSTALLED USING THE IN GROUND MOUNT OPTION IN LOCATIONS AS SHOWN ON THE PLAN.
- LOCATIONS OF BIKE RACKS SHALL BE FIELD ADJUSTED AS REQUIRED BY THE PROJECT PROFESSIONAL PRIOR TO INSTALLATION

BIKE RACK DETAIL-1
NOT TO SCALE

Double-Sided Grid Bike Rack - 18 Bike Capacity, Black



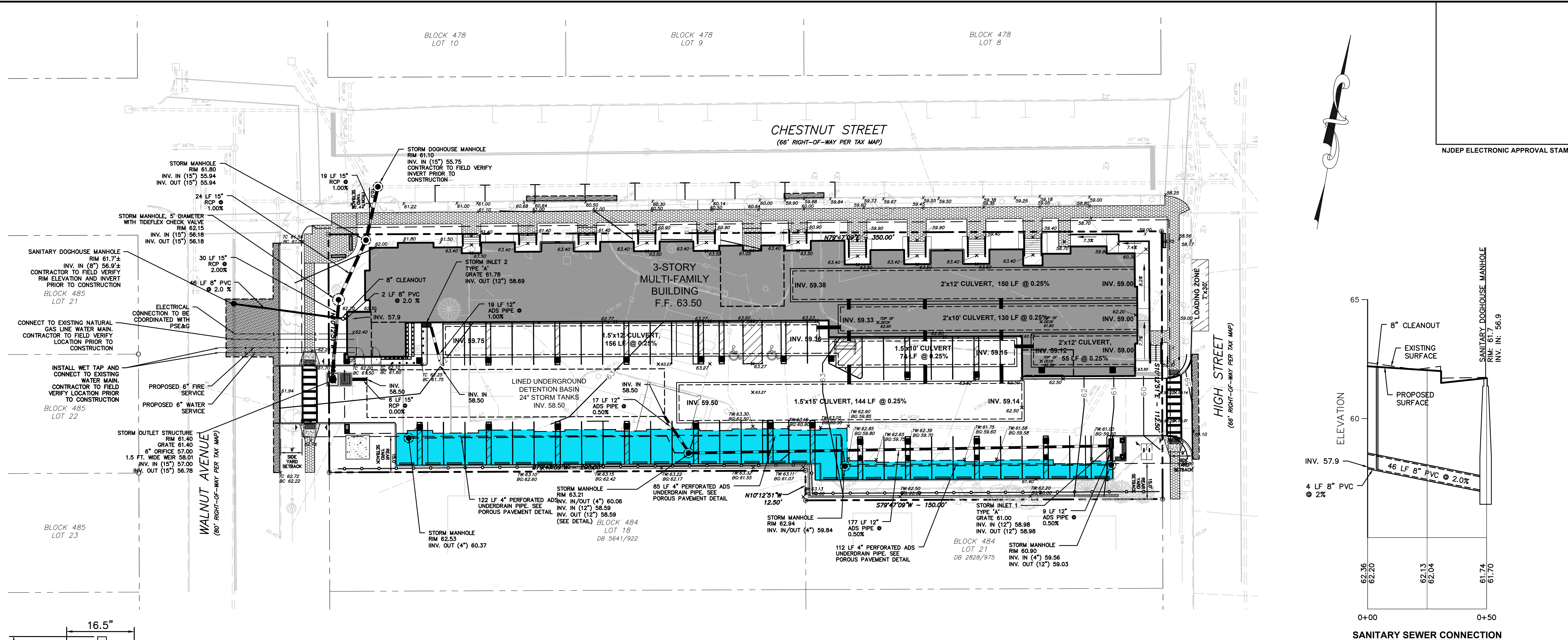
Everybody's biking! Secures bikes, deters theft. For commuter stations, libraries, schools.

- Sturdy 14-gauge construction, attractive powder coating.
- Rust-resistant.
- Mounting hardware included.

NOTES:

- BIKE RACK SHALL BE MANUFACTURED BY ULINE OR APPROVED EQUAL (WWW.ULINE.COM) 1-800-295-5510
- FINISH SHALL BE POWDER COAT IN STANDARD BLACK COLOR.
- BIKE RACKS SHALL BE INSTALLED USING THE IN GROUND MOUNT OPTION IN LOCATIONS AS SHOWN ON THE PLAN.
- LOCATIONS OF BIKE RACKS SHALL BE FIELD ADJUSTED AS REQUIRED BY THE PROJECT PROFESSIONAL PRIOR TO INSTALLATION

BIKE RACK DETAIL-2
NOT TO SCALE



6' TRAFFIC SAFETY STORE® RUBBER PARKING BLOCK

NOTE: NO BASEMENT IS PROPOSED

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BAHRAM FARZANEH, PE, PP
PROFESSIONAL ENGINEER, NJ LIC. No. 24GE03454800

----- BASIN SIZE REQUIRED: 2,500 SF

..... BASIN SIZE PROVIDED: 2,800 SF

LEGEND

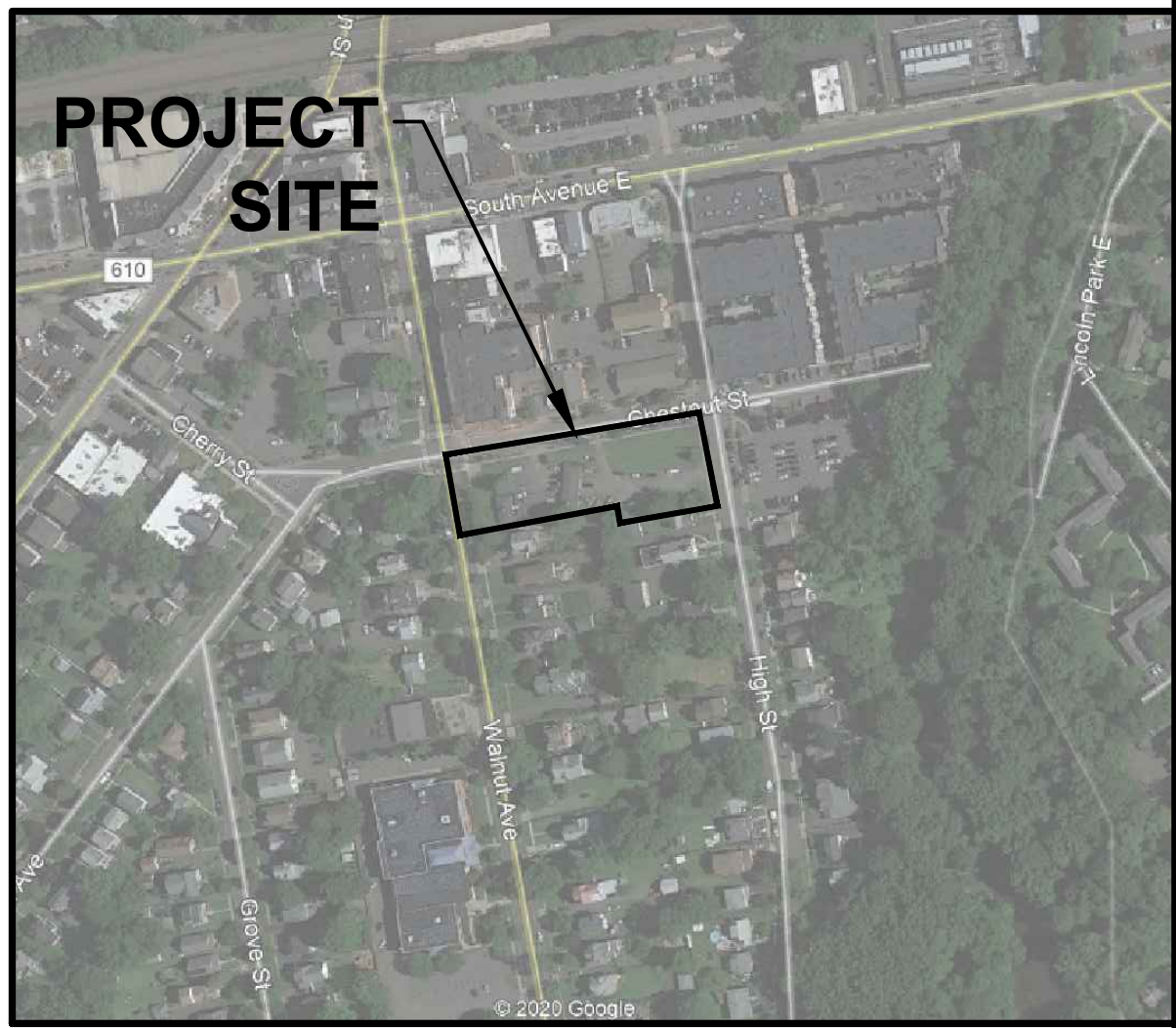
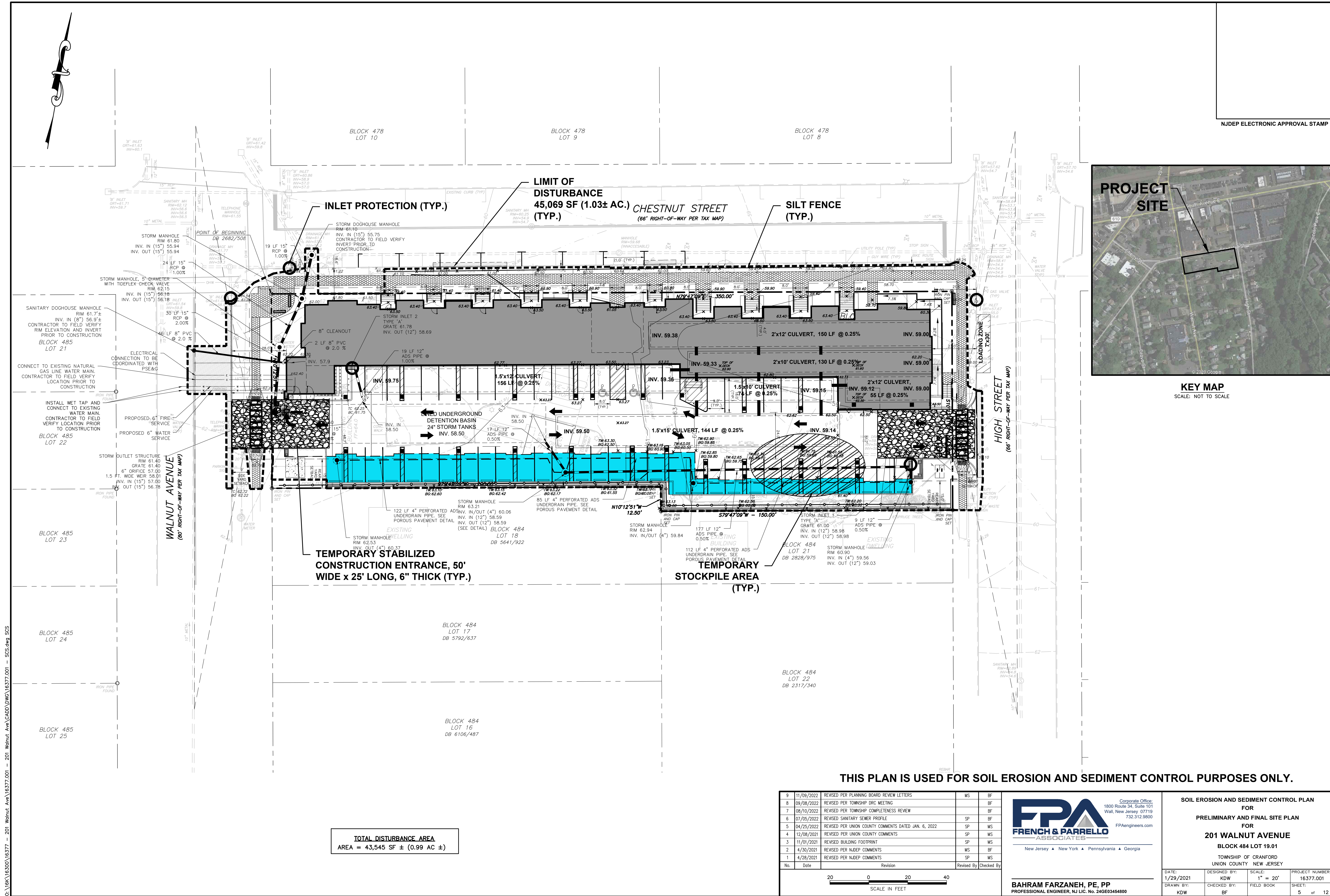


PROPOSED GROUND CONTOURS

POROUS PAVEMENT

GRADING AND DRAINAGE PLAN
FOR
PRELIMINARY AND FINAL SITE PLAN
FOR
201 WALNUT AVENUE
BLOCK 484 LOT 19.01
TOWNSHIP OF CRANFORD
UNION COUNTY NEW JERSEY

DATE: 1/29/2021	DESIGNED BY: MS	SCALE: 1" = 20'	PROJECT NUMBER: 16377.001
DRAWN BY: MS	CHECKED BY: BF	FIELD BOOK	SHEET: 4 of 12



KEY MAP
SCALE: NOT TO SCALE

THIS PLAN IS USED FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY.

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FPAEngineers.com

New Jersey • New York • Pennsylvania • Georgia

BAHRAM FARZANEH, PE, PP
PROFESSIONAL ENGINEER, NJ LIC. NO. 24GE03454800

SOIL EROSION AND SEDIMENT CONTROL PLAN FOR PRELIMINARY AND FINAL SITE PLAN FOR 201 WALNUT AVENUE BLOCK 484 LOT 19.01 TOWNSHIP OF CRANFORD UNION COUNTY NEW JERSEY			
DATE: 1/29/2021	DESIGNED BY: KDW	SCALE: 1" = 20'	PROJECT NUMBER: 16377.001
DRAWN BY: KDW	CHECKED BY: BF	FIELD BOOK	SHEET: 5 of 12

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SOIL EROSION AND SEDIMENT CONTROL NOTES

1. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
2. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO NJ STATE STANDARDS.
3. PERMANENT VEGETATION SHALL BE SEED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.
4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
5. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OR PRELIMINARY GRADING.
6. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING ALL CRITICAL AREAS SUBJECT TO EROSION (I.E.: STEEP SLOPES, ROADWAY EMBANKMENTS) WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE NJ STATE STANDARDS.
7. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E.: SLOPES GREATER THAN 3:1)
8. TRAFFIC CONTROL STANDARDS REQUIRE THE INSTALLATION OF A 50X30X6" PAD OF 1 1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INITIAL SITE DISTURBANCE.
9. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
10. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES.
11. IN THAT NJSA 4-24-39 ET SEQ., REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR SOIL EROSION AND SEDIMENT CONTROL, HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES. ALL SITE WORK FOR SITE PLANS AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS, WILL HAVE TO BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
12. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
13. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RECERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT NJ STATE SOIL EROSION & SEDIMENT CONTROL STANDARDS.
14. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.
15. MULCHING TO THE NJ STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONALS ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING.
16. CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF CONSTRUCTION PROJECT.
17. THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION AT THE REQUEST OF THE SOMERSET-UNION SOIL CONSERVATION DISTRICT.
18. HYDRO SEEDING IS A TWO- STEP PROCESS. THE FIRST STEP INCLUDES SEED, FERTILIZER, LIME, ETC., ALONG WITH MINIMAL AMOUNTS OF MULCH TO PROMOTE CONSISTENCY, GOOD SEED TO SOIL CONTACT, AND INDICATION OF COVERAGE. UPON COMPLETION OF SEEDING OPERATION, HYDROMULCH SHOULD BE APPLIED AT A RATE OF 1500 LBS. PER ACRE IN SECOND STEP. THE USE OF HYDROMULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AND SOIL CONDITIONS.

SOMERSET-UNION SOIL CONSERVATION DISTRICT
SOMERSET COUNTY 4-H CENTER
308 MILLTOWN ROAD
BRIDGEWATER NEW JERSEY 08807
(908) 526-2701

ACID SOILS NOTES

IN ORDER TO PROVIDE SUITABLE CONDITIONS FOR GROWTH AND VEGETATION AND TO PREVENT THE ACIDIFYING OF DRAINAGE WATER IN THOSE AREAS UNDERLAIN WITH ACID FORMATIONS WITH A pH BELOW 4.0 THE FOLLOWING REQUIREMENT SHALL BE MET:

1. LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID PRODUCING SOILS ARE ENCOUNTERED.
2. TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEMPORARILY STOCKPILED HIGH ACID PRODUCING SOILS.
3. STOCKPILES OF HIGH ACID PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THIS MATERIAL HAS A HIGH CLAY CONTENT.
4. TEMPORARILY STOCKPILED HIGH ACID PRODUCING SOIL MATERIAL TO BE STORED MORE THAN 48 HOURS SHOULD BE COVERED WITH PROPERLY ANCHORED, HEAVY GRADE SHEETS OF POLYETHYLENE WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF 3 TO 6 INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. SILT FENCE SHALL BE INSTALLED AT THE TOE OF SLOPE TO CONTAIN MOVEMENT OF THE STOCKPILED MATERIAL. TOPSOIL SHALL NOT BE APPLIED TO THE STOCKPILES TO PREVENT TOPSOIL CONTAMINATION WITH HIGH ACID PRODUCING SOIL.
5. HIGH ACID PRODUCING SOILS WITH A pH OF 4 OR LESS, OR CONTAINING IRON SULFIDE, (INCLUDING BORROW FROM CUTS OR DREGGED SEDIMENT) SHALL BE ULTIMATELY PLACE OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS PER ACRE (OR 450 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A pH OF 5 OR MORE EXCEPT AS FOLLOWS:
- A. AREAS WHERE TREES OR SHRUBS ARE PLANTED SHALL BE COVERED WITH A MINIMUM OF 24 INCHES OF SOIL WITH A pH OF 5 OR MORE.
- B. DISPOSAL AREAS SHALL NOT BE LOCATED WITHIN 24" OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES AND OTHERS TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
6. EQUIPMENT USED FOR MOVEMENT OF HIGH ACID-PRODUCING SOILS SHOULD BE CLEANED AT THE END OF EACH DAY TO PREVENT SPREADING OF HIGH ACID-PRODUCING SOIL MATERIALS TO OTHER PARTS OF THE SITE, INTO STREAMS OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED RUSTING.
7. NON-VEGETATIVE EROSION CONTROL PRACTICES (STONE TRAPPING PADS, STRATEGICALLY PLANTED LIMESTONE CHECK DAM, SEDIMENT BARRIER, WOOD CHIPS) SHOULD BE INSTALLED TO LIMIT THE MOVEMENT OF HIGH ACID-PRODUCING SOILS FROM, AROUND, OR OFF THE SITE.
8. FOLLOWING BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOIL, TOPSOILING AND SEEDING OF THE SITE (SEE TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION, PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION, AND TOPSOILING). MONITORING MUST CONTINUE FOR A MINIMUM OF 6 MONTHS TO ENSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH ACID-PRODUCING SOIL PROBLEMS EMERGE. IF PROBLEMS STILL EXIST, THE AFFECTED AREA MUST BE TREATED AS INDICATED ABOVE TO CORRECT THE PROBLEM.

CONSTRUCTION SCHEDULE AND PROCEDURE FOR IMPLEMENTATION OF SOIL EROSION AND SEDIMENT CONTROL MEASURES

1. PROVIDE TEMPORARY STABILIZATION OF ALL DISTURBED AREAS AND INSTALL SILT FENCE, TREE PROTECTION, INLET PROTECTION, STABILIZED CONSTRUCTION ENTRANCES AND ALL OTHER NECESSARY SOIL EROSION MEASURES. (1 WEEK)
2. REMOVE EXISTING SITE IMPROVEMENTS. (3 WEEK)
3. CLEAR AND ESTABLISH ROUGH GRADES AS NECESSARY TO CONSTRUCT SITE IMPROVEMENTS. (2 WEEKS)
4. INSTALL ALL UNDERGROUND UTILITIES AND ADDITIONAL ADDITIONAL INLET PROTECTION AS NECESSARY (2 WEEKS)
5. CONSTRUCT PROPOSED BUILDING AND PARKING AREAS (24 WEEKS)
6. ESTABLISH FINISHED GRADE, AND PROVIDE PERMANENT VEGETATIVE COVER. (1 WEEK)
7. REMOVE ACCESS PROTECTION, INLET PROTECTION, TREE PROTECTION AND SILT FENCE AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED. (2 DAYS)

THE ABOVE SCHEDULE IS FOR THE IMPLEMENTATION AND INSTALLATION OF SOIL EROSION AND SEDIMENT CONTROL MEASURES ONLY. CONTRACTOR MAY MODIFY AND/OR CREATE HIS OWN SCHEDULE. IF THE CONSTRUCTION SCHEDULE IS MODIFIED, A REVISION TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED.

PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

1. SITE PREPARATION
- A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS, FOR LAND GRADING.
- B. IMMEDIATELY PRIOR TO SEEDING AND TOPSOILING APPLICATION, THE SUBSOIL SHALL BE EVALUATED FOR COMPACTION IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING.
- C. TOPSOIL SHOULD BE HANDLED ONLY WHEN ITS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES. TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING.
- D. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS.
2. SEEDBED PREPARATION
- A. UNIFORMLY APPLY GROUND LIMESTONE AND FERTILIZER TO TOPSOIL WHICH HAS BEEN SPREAD AND FIRMED, ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES (HTTP://NJAES.RUTGERS.EDU/COUNTY/). FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 S.F. OF 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES. IF FERTILIZER IS NOT INCORPORATED, APPLY ONE-HALF THE RATE DESCRIBED ABOVE DURING THE SEEDBED PREPARATION AND REPEAT ANOTHER ONE-HALF RATE APPLICATION OF THE SAME FERTILIZER WITHIN 3 TO 5 WEEKS AFTER SEEDING.
- B. WORK LIME AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
- C. HIGH ACID PRODUCING SOIL. SOILS HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH OF 5 OR MORE BEFORE INITIATING SEEDBED PREPARATION. SEE ACID SOIL NOTES.
3. SEEDING
- A. PERMANENT SEEDING SHALL CONSISTING OF THE FOLLOWING MIXES OR APPROVED EQUAL - ACCEPTABLE SEEDING DATES ARE BETWEEN MARCH 1 THRU APRIL 30 AND OPTIMAL SEEDING DATES ARE AUGUST 15 THRU OCTOBER 15:
- | HARD FESCUE | ● 4.0#/1,000 S.F. |
|--------------------|-------------------|
| PERENNIAL RYEGRASS | ● 1.0#/1,000 S.F. |
| KENTUCKY BLUEGRASS | ● 1.0#/1,000 S.F. |
- PERMANENT SEEDING SHALL BE PROVIDED ON ALL THE DETENTION BASIN SIDE SLOPES AND BASIN BOTTOM. THE SEED MIX SHALL BE SEED MIXTURE 17 AND CONSIST OF THE FOLLOWING MIXTURE OR APPROVED EQUAL - ACCEPTABLE SEEDING DATES ARE BETWEEN MARCH 1 THRU AUGUST 14 AND OPTIMAL SEEDING DATES ARE AUGUST 15 THRU OCTOBER 1:
- | CREeping BENTGRASS | ● 1#/1,000 S.F. |
|---------------------|-----------------|
| CREeping RED FESCUE | ● 1#/1,000 S.F. |
| ALKALI SALTGRASS | ● 1#/1,000 S.F. |
- PLEASE NOTE THAT OTHER SEED MIXTURES CAN BE USED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
- B. CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER. HYDROSEEDING OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDING. SEED SHALL BE INCORPORATED TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE-TEXTURED SOIL.
- C. AFTER SEEDING, FIRING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.
- D. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK, OR TRAILER-MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER, AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT-FINERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. WHEN POOR SEED TO SOIL CONTACT OCCURS, THERE IS A REDUCED SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.
4. MULCHING

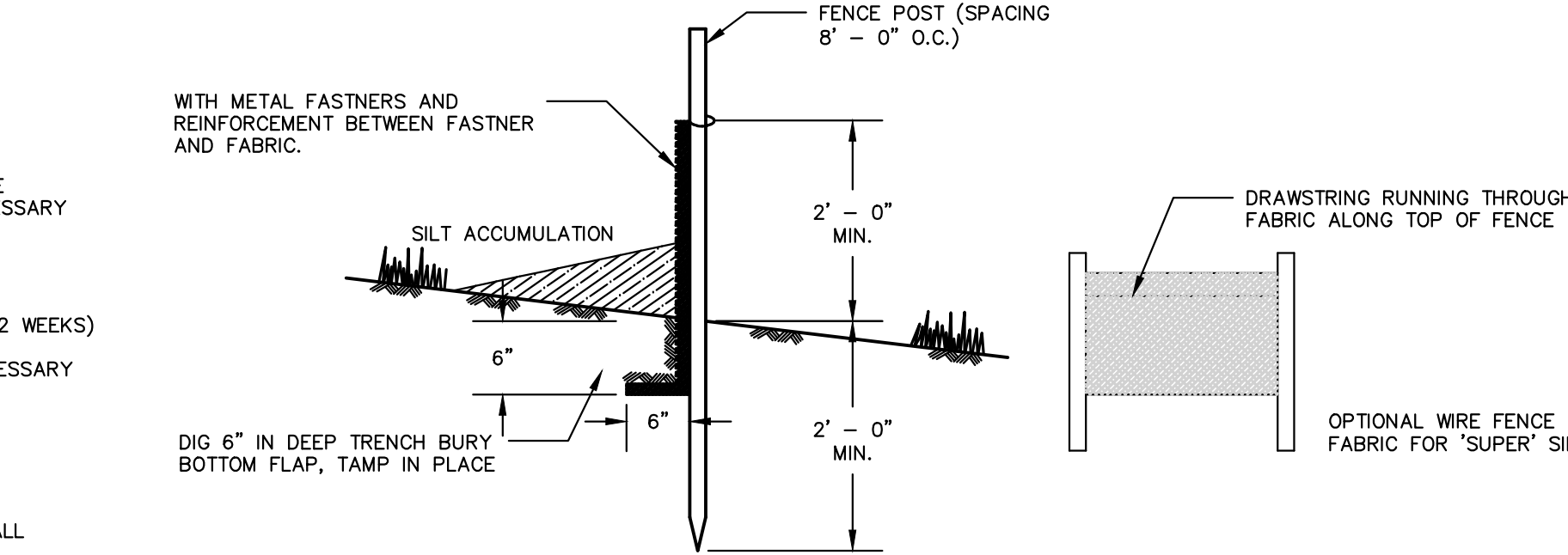
- MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND EARLIER ESTABLISHMENT. THE EXISTENCE OF VEGETATION SUFFICIENT TO CONTROL SOIL EROSION SHALL BE DEEMED COMPLIANT WITH THIS REQUIREMENT.

- A. STRAW OR HAY. UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, APPLIED AT THE RATE OF 1 1/2 TO 2 TONS ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO PRESENCE OF WEED SEED.
- APPLICATION-- SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 95% OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAY-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISKING TO 90 TO 90 POUNDS WITHIN EACH SECTION.
- ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COSTS.
1. PEG AND TWINE. DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRIS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.
2. MULCH NETTING. STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTING TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED.
3. CRIMPER (MULCH ANCHORING COILER TOOL) - A TRACTOR-DRAWN IMPLEMENT, SOMEWHAT LIKE A DISC HARROW, ESPECIALLY DESIGNED TO PUSH OR CUT SOME OF THE BROADCAST LONG FIBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT. THIS TECHNIQUE IS LIMITED TO AREAS TRAVERSABLE BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE. NO TACKIFYING OR ADHESIVE AGENT IS REQUIRED.
4. LIQUID MULCH BINDERS--MAY BE USED TO ANCHOR SALT HAY OR STRAW MULCH.
- A. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.
- B. USE ONE OF THE FOLLOWING:
1. ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING, POWDER BASED, HYDROPHILIC MATERIALS THAT MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOXOTIC EFFECT OR IMPEDE GROWTH OF TURFGRASS. USE AT RATES AND WEATHER CONDITIONS AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS. MANY NEW PRODUCTS ARE AVAILABLE SOME OF WHICH MAY BE FURTHER EVALUATION FOR USE IN THIS STATE.
2. SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND FOLLOWING APPLICATION TO MULCH, DRYING AND CURING SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. IT SHALL BE APPLIED AT RATES AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.
3. WOOD-FIBER OR PAPER-FIBER MULCH. SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. THIS MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.
4. PELLETIZED MULCH. COMPRESSED AND EXTRUDE PAPER AND/OR WOOD FIBER PRODUCT, WHICH MAY CONTAIN CO-POLYMERS, TACKIFIERS, FERTILIZERS AND COLORING AGENTS. THE DRY PELLETS, WHEN APPLIED TO A SEEDBED AREA AND WATERED, FORMA MULCH MAT. PELLETIZED MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75LBS/1,000 SQUARE FEET WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEEN FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWN OR RENOVATION AREAS, SEED AREAS WHERE WEED-SEED FREE MULCH IS DESIRED OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT PRACTICAL OR DESIRABLE.

APPLY THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETIZED MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.

5. IRRIGATION (WHERE FEASIBLE)

IF SOIL MOISTURE IS DEFICIENT, AND MULCH IS NOT USED, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER (A MINIMUM OF 1/4 INCH APPLIED UP TO TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED). THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES.



SILT FENCE

NOT TO SCALE

TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION

1. SITE PREPARATION
- A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS, FOR LAND GRADING.
- B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS.
- C. IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.)
2. SEEDBED PREPARATION
- A. APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 S.F. OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. APPLY LIMESTONE AT THE RATE AS ESTABLISHED BY SOIL TESTING. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIVING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES.
- B. WORK LIME AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
- C. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RECTIFIED IN ACCORDANCE WITH THE ABOVE.
- D. SOILS HIGH IN SULFIDES OR HAVING A PH OF 4 OR LESS, SEE ACID SOIL NOTES.
3. SEEDING
- A. TEMPORARY SEEDING SHALL CONSISTING OF THE FOLLOWING SEED SELECTIONS OR APPROVED EQUAL:
- | COOL SEASON GRASSES | |
|---------------------|--|
| SPRING OATS | ● 2.0#/1,000 S.F., WITH OPTIMUM SEED DEPTH OF 1.0 INCH |
| WINTER CEREAL RYE | ● 2.5#/1,000 S.F., WITH OPTIMUM SEED DEPTH OF 1.0 INCH |
- | WARM SEASON GRASSES | |
|---------------------|---|
| PEARL MILLET | ● 0.5#/1,000 S.F. WITH OPTIMUM SEED DEPTH OF 1.0 INCH |
- PLEASE NOTE THAT OTHER SEED SELECTIONS CAN BE USED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
- B. CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDER OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDBED PREPARATION TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE-TEXTURED SOIL.
- C. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK, OR TRAILER-MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER, AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT-FINERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. WHEN POOR SEED TO SOIL CONTACT OCCURS, THERE IS A REDUCED SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.
- D. AFTER SEEDING, FIRING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

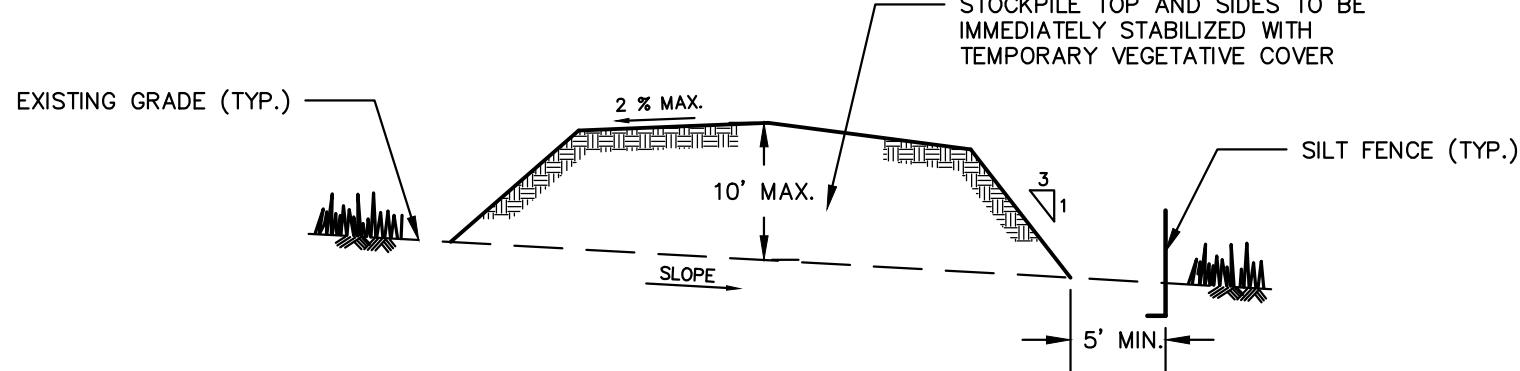
4. MULCHING

REFER TO THE MULCH NOTES, NOTE 4 UNDER THE PERMANENT VEGETATIVE COVER SECTION.

STABILIZATION WITH MULCH

METHODS AND MATERIALS

1. SITE PREPARATION
- A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS, FOR LAND GRADING.
- B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS. SEE STANDARDS 11 THRU 42.
2. PROTECTIVE MATERIALS
- A. UN-ROTTED SMALL-GRAIN STRAW, OR SALT HAY AT 2.0 TO 2.5 TONS PER ACRE IS SPREAD UNIFORMLY AT 90 TO 115 POUNDS PER 1,000 SQUARE FEET AND ANCHORED WITH A MULCH ANCHORING TOOL, LIQUID MULCH BINDERS, OR NETTING TIE DOWN. OTHER SUITABLE MATERIALS MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT. THE APPROVED RATES ABOVE HAVE BEEN MET WHEN THE MULCH HAS BEEN VISUALLY INSPECTED. I.E. THE SOIL CAN NOT BE SEEN BELOW THE MULCH.
- B. ASPHALT EMULSION IS RECOMMENDED AT THE RATE OF 600 TO 1,200 GALLONS PER ACRE. THIS IS SUITABLE FOR A LIMITED PERIOD OF TIME WHERE TRAVEL BY PEOPLE, ANIMALS OR MACHINES IS NOT A PROBLEM.
- C. SYNTHETIC OR ORGANIC SOIL STABILIZERS MAY BE USED UNDER SUITABLE CONDITIONS AND IN QUANTITIES AS RECOMMENDED BY THE MANUFACTURER.
- D. WOOD-FIBER OR PAPER-FIBER MULCH AT THE RATE OF 1,500 POUNDS PER ACRE (OR ACCORDING TO THE MANUFACTURER'S REQUIREMENTS) MAY BE APPLIED BY A HYDROSEEDER.
- E. MULCH NETTING, SUCH AS PAPER JUTE, EXCELSIOR, COTTON, OR PLASTIC, MAY BE USED.
- F. WOODCHIPS APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 2 INCHES MAY BE USED. WOODCHIPS WILL NOT BE USED ON AREAS WHERE FLOWING WATER COULD WHERE FLOWING WATER COULD WASH THEM INTO AN INLET AND PLUG IT.
- G. GRAVEL, CRUSHED STONE, OR SAG AT THE RATE OF 9 CUBIC YARDS PER 1,000 SQ. FT. APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 3 INCHES MAY BE USED. SIZE 2 OR 3 (ASTM-C-33) IS RECOMMENDED.
3. MULCH ANCHORING - SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT OF HAY OR STRAW TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA AND STEEPNESS OF SLOPES.
- A. PEG AND TWINE - DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRIS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO AND UP TO 300 FEET LONG.
- B. MULCH NETTING - STAPLE PAPER, COTTON, OR PLASTIC NETTINGS OVER MULCH. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED. NETTING IS USUALLY AVAILABLE IN ROLLS 4 FEET WIDE AND UP TO 300 FEET LONG.
- C. CRIMPER MULCH ANCHORING COILER TOOL - A TRACTOR-DRAWN IMPLEMENT ESPECIALLY DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SURFACE. THIS PRACTICE AFFORDS MAXIMUM EROSION CONTROL, BUT IS USE IS LIMITED TO THOSE SLOPES UPON WHICH THE TRACTOR CAN OPERATE SAFELY. SOIL PENETRATION SHOULD BE ABOUT 3 TO 4 INCHES. ON SLOPING LAND, THE OPERATION SHOULD BE ON THE CONTOUR.
- D. LIQUID MULCH - BINDERS
1. APPLICATION SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.
2. USE ONE OF THE FOLLOWING:
- A. ORGANIC AND VEGETABLE BASED BINDER - NATURALLY OCCURRING, POWDER BASED, HYDROPHILIC MATERIALS THAT MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOXOTIC EFFECT OR IMPEDE GROWTH OF TURFGRASS. VEGETABLE BASED GELS SHALL BE APPLIED AT RATES AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER.
- B. SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND FOLLOWING APPLICATION TO MULCH, DRYING AND CURING SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. IT SHALL BE APPLIED AT RATES AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.



NOTES:

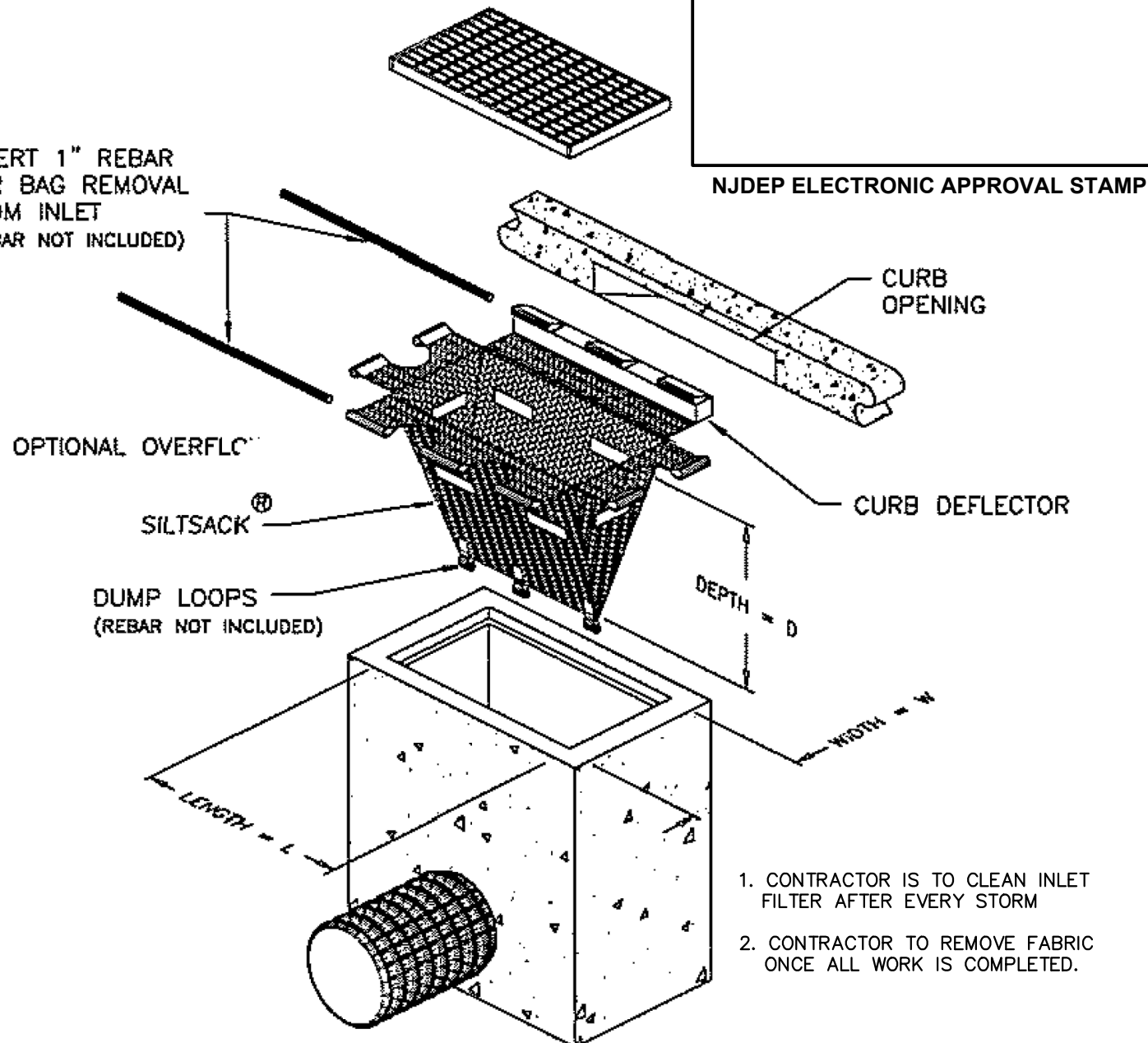
1. TOPSOIL STOCKPILES TO BE PLACED AS DETERMINED IN THE FIELD.
2. STOCKPILE NOT TO BE PLACED IN AREA WITH CONCENTRATED FLOW, WETLANDS, EXTREME SLOPE OR WITHIN 100' OF A NATURAL STREAM.

TEMPORARY STOCKPILE

NOT TO SCALE

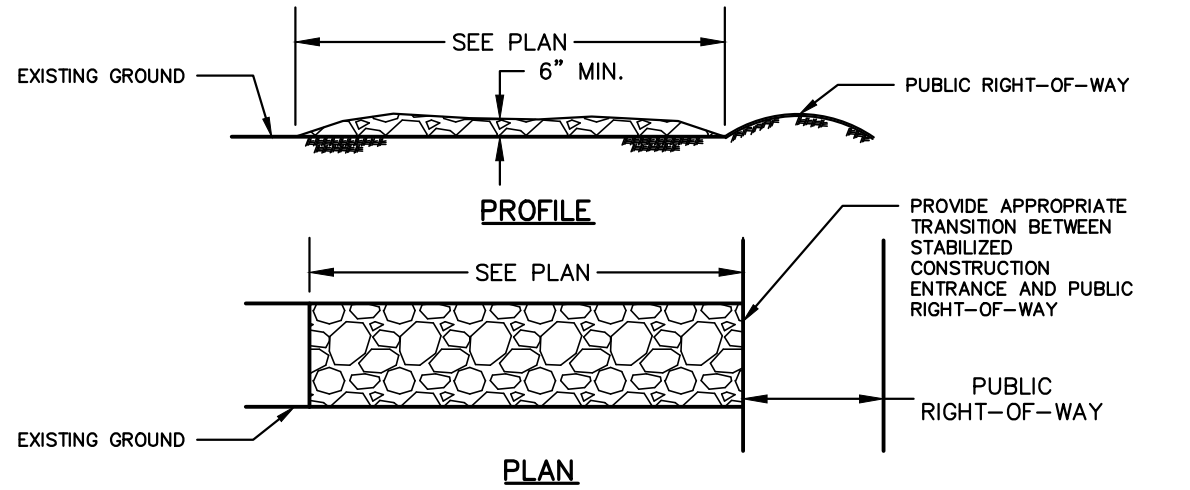
No.	Date	Revision	Revised By	Checked By
9	11/09/2022	REVISED PER PLANNING BOARD REVIEW LETTERS	MS	BF
8	09/08/2022	REVISED PER TOWNSHIP DRC MEETING		BF
7	08/10/2022	REVISED PER TOWNSHIP COMPLETENESS REVIEW		BF
6	07/05/2022	REVISED SANITARY SEWER PROFILE	SP	BF
5	04/25/2022	REVISED PER UNION COUNTY COMMENTS DATED JAN. 6, 2022	SP	MS
4	12/08/2021	REVISED PER UNION COUNTY COMMENTS	SP	MS
3	11/01/2021	REVISED BUILDING FOOTPRINT	SP	MS
2	4/30/2021	REVISED PER NJDEP COMMENTS	MS	BF
1	4/28/2021	REVISED PER NJDEP COMMENTS	SP	MS

SCALE IN FEET



INLET PROTECTION DETAIL

NOT TO SCALE



PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COURSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FEET	100 FEET
2% TO 5%	100 FEET	200 FEET
>5%	ENTIRE SURFACE STABILIZED WITH HOT MIX ASPHALT BASE COURSE, MIX 1-2	

NOTES:

1. STONE SIZE - USE ASTM C-33, SIZE NO. 2 (2 1/4 TO 1 1/2 IN.) OR 3 (2 TO 1 1/2 IN.). USE CLEAN CRUSHED ANGULAR STONES, CRUSHED CONCRETE OF SIMILAR SIZE MAY BE SUBSTITUTED BUT WILL REQUIRE MORE FREQUENT UPGRADING AND MAINTENANCE.
2. LENGTH - 50 FEET MINIMUM WHERE SOILS ARE COURSE GRAINED (SAND OR GRAVEL), OR 100 FEET MINIMUM WHERE SOILS ARE FINE GRAINED (CLAYS OR SILTS). EXCEPT WHERE THE TRAVEL LENGTH IS LESS THAN 50 OR 100 FEET RESPECTIVELY, THESE LENGTHS MAY BE INCREASED WHERE FIELD CONDITIONS DICTATE. STORMWATER FROM UP-SLOPE AREAS SHALL BE DIVERTED AWAY FROM THE STABILIZED PAD (SEE STANDARD FOR DIVERSIONS), WHERE DIVERSION IS NOT POSSIBLE, THE LENGTH OF THE STABILIZED PAD SHALL BE SHOWN AS IN TABLE ABOVE. WHERE THE SLOPE OF THE STABILIZED PAD EXCEEDS 5%, A STABILIZED PAD BASE COURSE OF HOT MIX ASPHALT BASE COURSE, MIX 1-2, SHALL BE INSTALLED. THE TYPE AND THICKNESS OF THE BASE COURSE AND USE OF A DENSE GRADED AGGREGATE SUB-BASE SHALL BE AS PRESCRIBED BY LOCAL MUNICIPAL ORDINANCE OR OTHER GOVERNING AUTHORITY.
3. THICKNESS - NOT LESS THAN 6 INCHES.
4. WIDTH - NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. TIE-WASHING - IF SPACE IS LIMITED, VEHICLE TIRES MAY BE WASHED WITH CLEAN WATER BEFORE ENTERING A PAVED AREA. A WASH STATION MUST BE LOCATED SUCH THAT WATER WILL NOT FLOW ONTO PAVED ROADWAYS OR INTO UNPROTECTED STORM DRAINAGE SYSTEMS.
6. WHEN THE CONSTRUCTION ACCESS EXITS OUTTO A MAJOR ROADWAY, A PAVED TRANSITION AREA MAY BE INSTALLED BETWEEN THE MAJOR ROADWAY AND THE STONED ENTRANCE TO PREVENT LOOSE STONES FROM BEING TRANSPORTED OUTTO THE ROADWAY BY THE HEAVY EQUIPMENT ENTERING OR LEAVING THE SITE.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS (PRIVATE OR PUBLIC) OR OTHER IMPERVIOUS SURFACES MUST BE REMOVED IMMEDIATELY.
8. WHERE ACCUMULATION OF DUST/SEDIMENT IS INADEQUATELY CLEANED OR REMOVED BY CONVENTIONAL METHODS, A POWER BROOM OR STREET SWEEPER WILL BE REQUIRED TO CLEAN PAVED OR IMPERVIOUS SURFACES. ALL OTHER ACCESS POINTS WHICH ARE NOT STABILIZED SHALL BE BLOCKED OFF.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

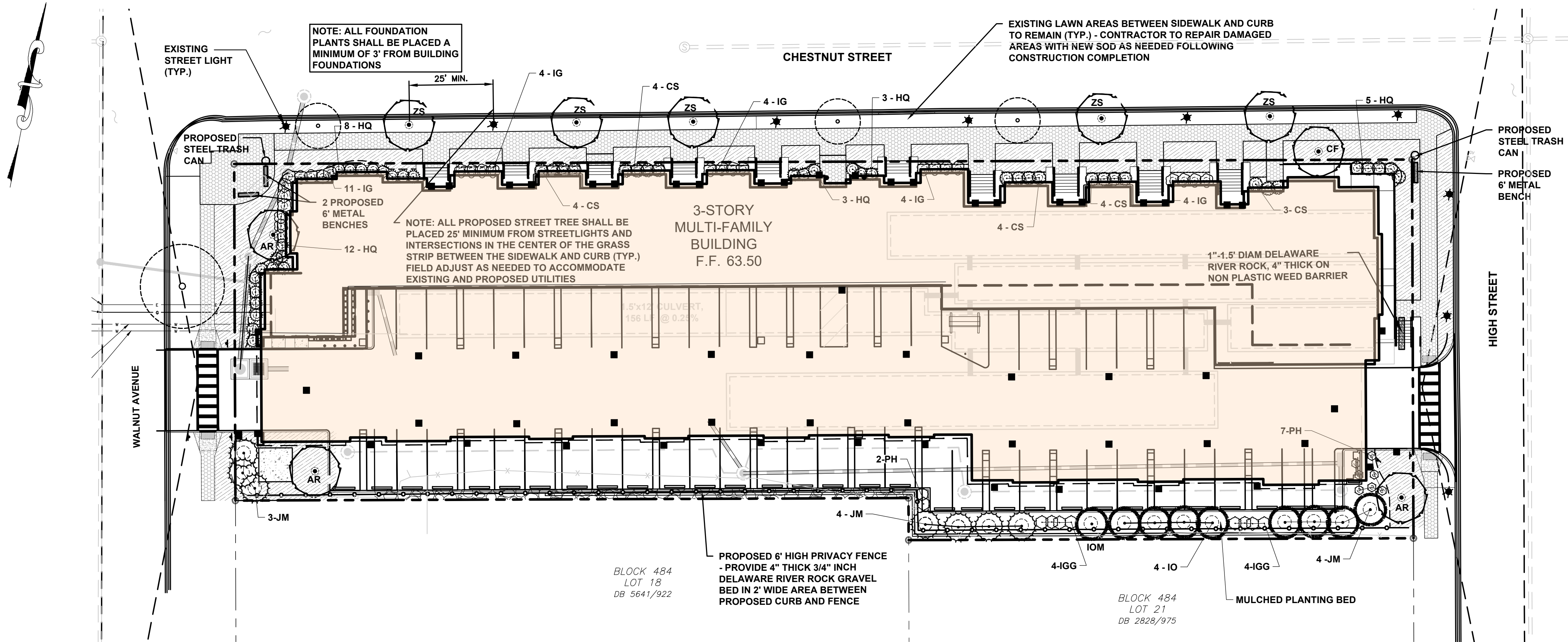


New Jersey ▲ New York ▲ Pennsylvania ▲ Georgia

SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS FOR PRELIMINARY AND FINAL SITE PLAN FOR 20

C:\B6K\16300\16377 - 201 Walnut Ave CAD\DWG\16377.001 - LA.dwg LA PLAN

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DUE TO INHERENT ERRORS IN REPRODUCTION METHODS, ERRORS MAY OCCUR WHEN SCALING THIS DRAWING



LEGEND

- SODDED LAWN (TYP.)
- PROPOSED LIGHT FIXTURE
- EXISTING STREET LIGHT FIXTURE
- EXISTING TREE TO REMAIN
- PROPOSED PLANT MATERIAL
- APPROXIMATE INSTALLED SIZE
- APPROXIMATE SIZE AT 15 TO 20 YRS GROWTH

PLANTING NOTES

- THE LANDSCAPE PLAN SHALL BE USED FOR LANDSCAPING PURPOSES ONLY. THE CONTRACTOR SHOULD EXAMINE ALL ENGINEERING DRAWINGS AND FIELD CONDITIONS FOR EXACT LOCATIONS OF UTILITIES, DRAINS, ETC., AND NOTIFY THE OWNER ABOUT ANY DISCREPANCIES BEFORE STARTING WORK.
- ALL PLANTING SHALL BE IN CONFORMANCE WITH THE AMERICAN NURSERYMEN'S ASSOCIATION STANDARDS, CURRENT EDITION. ALL PLANT MATERIALS USED SHALL BE TRUE TO NAME AND SIZE IN CONFORMITY WITH THE CURRENT EDITION OF THE AMERICAN STANDARD OF NURSERY STOCK AND SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY. ALL PLANTS SHALL HAVE NORMAL, WELL-DEVELOPED BRANCHES AND VIGOROUS ROOT SYSTEMS. THEY SHALL BE SOUND, HEALTHY, VIGOROUS, FREE FROM DEFECTS, DISFIGURING KNOTS, ABRASIONS OF THE BARK, SUN SCALD INJURIES, PLANT DISEASES, INSECT EGGS, BORERS, AND ALL OTHER FORMS OF INFECTION. ALL PLANTS SHALL BE NURSERY GROWN. ALL PLANT MATERIAL SHALL BE TAGGED AT THE NURSERY SOURCE AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT PRIOR TO PLANTING.
- THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES CAUSED BY ANY PERSON, VEHICLE, EQUIPMENT, OR TOOLS RELATED TO THE EXECUTION OF THIS CONTRACT.
- EXCAVATION NEAR EXISTING UTILITIES TO BE CAREFULLY PERFORMED BY HAND.
- ALL PLANT MATERIAL SHALL BEAR THE SAME RELATION TO FINISHED GRADE AS IT BORE TO EXISTING GRADE AT THE NURSERY. ALL PLANT MATERIAL SHALL BE PLANTED SO THAT THE TOP OF THE ROOTBALL IS NO HIGHER OR LOWER THAN THE EXISTING/FINISHED GRADE DEPENDENT UPON SOIL CONDITIONS.
- IN THE EVENT THAT PLANTING DISCREPANCIES OR MATERIAL OMISSIONS OCCUR IN THE PLANT MATERIALS LIST, THE LANDSCAPING PLAN SHALL GOVERN. THE USE AND PLANTING OF BARE ROOT MATERIAL SHALL BE PROHIBITED.
- ANY SUBSTITUTIONS OF PLANT MATERIAL WITH REGARDS TO SIZE, SPECIES, VARIETY, ETC., SHALL BE SUBJECT TO APPROVAL BY THE OWNER.
- PLANTS SHALL ONLY BE INSTALLED WHEN THE SOIL IS FROST FREE.
- UNDER NO CIRCUMSTANCES SHOULD THE MAIN LEADER OF A DECIDUOUS OR EVERGREEN TREE BE TOPPED. DECIDUOUS TREES SHALL BE PRUNED BY REMOVAL OF 1/3 OF THE INTERIOR BRANCHING STRUCTURE WITHOUT ALTERING THE ORIGINAL BRANCHING FORM OF THE TREE.
- ALL DISTURBED AREAS, NOT BEING PLANTED, SHALL BE TOPSOILED 4" THICK, FERTILIZED, SEEDED, AND MULCHED WITH APPROVED MULCH. TOPSOIL SHALL BE NATURAL FRIABLE, FERTILE SOIL CHARACTERISTIC OF PRODUCTIVE SOIL IN THE VICINITY. IT SHALL BE FREE OF LUMPS OF CLAY, STONES, ROOTS, AND OTHER FOREIGN MATTER.
- CUT AND LOOSEN SISAL HEMP CHOKIE AROUND TREE TRUNK. ALL PLASTIC MATERIAL SHALL NOT BE PERMITTED. ALL WIRE BASKETS AND PLASTIC LINERS OF CONTAINER GROWN TREES AND SHRUBS MUST BE COMPLETELY REMOVED. NO CONTAINER GROWN MATERIAL WILL BE ACCEPTED IF IT IS ROOT BOUND AND NOT ROOT PRUNED. THE USE OF NYLON TWINE ON ROOT BALLS IS PROHIBITED.
- THE DEPTH OF PLANT PITS SHALL BE INCREASED BY 12" THROUGH THE ADDITION OF LOOSE AGGREGATE (3/4" TO 1 1/2" DIAMETER) WHEREVER POOR DRAINAGE OCCURS OR WHERE DIRECTED BY THE OWNER.
- GUY WIRES SHALL BE LOCATED SO THAT THEY WILL NOT PULL CROTCH APART. GUY WIRES TO SECOND BRANCH (MINIMUM ONE-THIRD HEIGHT OF TREE). USE THREE GUYS PER TREE UNLESS OTHERWISE INDICATED. ALL TREE STAKES, GUY WIRES, TREE WRAPPING AND SAUCERS SHALL BE REMOVED AFTER ONE GROWING SEASON.
- PLANTS PLANTED IN ROWS SHALL BE MATCHED SPECIMENS AND BE UNIFORM IN SIZE AND FORM.
- IN THE EVENT THAT EXISTING VEGETATION IS REMOVED BEYOND THE CLEARING LIMITS SHOWN ON THE PLANS, ADDITIONAL PLANTING MUST BE PROVIDED AS APPROVED BY THE TOWNSHIP AND AT NO COST TO THE OWNER.
- PLANTING BACKFILL MIXTURE SHALL CONSIST OF ONE PART TOPSOIL, ONE PART NATIVE SOIL AND ONE PART PEAT MOSS. NOTE THAT PLANTING MIXTURE MAY CHANGE BASED UPON SOIL CONDITIONS.
- MULCH, 4" IN DEPTH, SHALL BE TREATED SHREDDED HARDWOOD BARK NOT EXCEEDING 2" IN GREATEST DIMENSION. MULCH SHALL BE INSTALLED WITH A MAXIMUM OF ONE (1) INCH WITHIN ONE (1) FOOT ON THE TREE'S ROOT FLARE. A NON-PLASTIC WEED RETARDANT BARRIER SHALL BE USED IN ALL NON GRASSED AREAS. MULCH SHALL BE FINE GRADED FOR A PLEASING APPEARANCE. THE USE OF MARBLE OR PINE BARK CHIPS IS PROHIBITED. MULCH VOLCANOES ARE NOT PERMITTED.
- ALL PLANT MATERIAL SHALL BE GIVEN A MINIMUM OF 5 GALLONS OF WATER AT THE TIME OF INSTALLATION AND SHALL BE WATERED AT INTERVALS DURING ESTABLISHMENT TO ENSURE ADAPTATION TO THE SITE. PRIOR TO THE INSTALLATION OF THE PLANT MATERIAL, THE CONTRACTOR SHALL FILL EACH PLANTING PIT WITH WATER AND ALLOW IT TO FULLY PERCOLATE INTO THE GROUND PRIOR TO PLACEMENT OF THE PLANT. THE CONTRACTOR SHALL NOTIFY EITHER THE OWNER OR PROJECT LANDSCAPE ARCHITECT OF ANY PERCOLATION PROBLEMS PRIOR TO INSTALLATION.
- PREFERRED PLANTING TIME PERIODS ARE FROM SEPTEMBER 1 TO NOVEMBER 30 OR MARCH 20 TO MAY 31. NO PLANTING SHALL BE EXECUTED DURING ABNORMALLY HOT WEATHER NOR WHEN THE GROUND IS FROZEN.
- THE CONTRACTOR SHALL REMOVE ALL DAMAGED BRANCHES AND NURSERY TAGS AT THE TIME OF INSTALLATION.
- ALL TURF SHALL RECEIVE FERTILIZER CONSISTING OF 10-6-4 (50% ORGANIC) COMPOSITION, APPLIED AT 3 LB. PER 100 SQ. FT. SLOW RELEASE FERTILIZER TABLETS OR PACKETS OF 20-10-5 COMPOSITION SHALL BE ADDED TO ALL PLANTING PITS AT THE FOLLOWING RATIOS: 1 PER SHRUB, 2 PER DECIDUOUS OR EVERGREEN TREES UP TO 2" IN CALIPER AND 3 FOR DECIDUOUS AND EVERGREEN TREES ABOVE 2" IN CALIPER.
- EACH TREE THAT IS PLANTED MUST BE TAGGED WITH A DURABLE LABEL BEARING THE GENUS, SPECIES, VARIETY, PLANT PATENT NUMBER (IF APPLICABLE) AND CULTURAL REQUIREMENTS AND MUST BE INSPECTED PRIOR TO REMOVAL.
- ALL GROUPED SHRUBS SHALL BE MULCHED TOGETHER TO FORM ONE CONTINUOUS PLANTING BED.
- CONTRACTOR TO BE RESPONSIBLE FOR SODDING AREAS BEING DISTURBED BY CONSTRUCTION. SOD TO BE IN ACCORDANCE WITH SOIL CONSERVATION DISTRICT'S STANDARDS.
- ALL TREES FOUR (4) FEET OR GREATER IN HEIGHT SHALL BE STAKED PER TOWNSHIP DESIGN STANDARDS.
- ALL PLANT RELOCATIONS SHALL BE SUBMITTED TO THE TOWNSHIP ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
- ALL PLANT MATERIAL SHALL BE GUARANTEED FOR PERIOD OF ONE YEAR FROM THE TIME OF PLANTING.
- ALL TREE "GATOR" IRRIGATION BAGS SHALL BE MAINTAINED FOR SIX MONTHS AND THEN REMOVED.

PLANT LIST

DECIDUOUS TREES	KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER TYPE	MATURE SIZE	REMARKS
AR	* N	3	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	4" CAL.	B&B	30'-40' HEIGHT AND SPREAD	SINGLE TRUNK ONLY
CF	* N	1	CORNUS FLORIDA	FLOWERING DOGWOOD	3" CAL.	B&B	15'-25' HEIGHT AND SPREAD	WHITE FLOWERS, SPRING, MULTI TRUNK
ZS	* &	5	ZELKOVA SERRATA	JAPANESE ZELKOVA	3" CAL.	B&B	50'-60' HEIGHT AND SPREAD	SINGLE TRUNK ONLY
EVERGREEN TREES	KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER TYPE	MATURE SIZE	REMARKS
IO	N#&	4	ILEX OPACA 'GREENLEAF' FEMALE	FEMALE GREENLEAF AMERICAN HOLLY	6' HEIGHT	1 GALLON CONT	25' HEIGHT AND 15' SPREAD	EVERGREEN UPRIGHT TREE, FEMALE VERSION, RED BERRIES IN WINTER
IOM	N#&	1	ILEX OPACA 'GREENLEAF' MALE	MALE GREENLEAF AMERICAN HOLLY	6' HEIGHT	1 GALLON CONT	25' HEIGHT AND 15' SPREAD	EVERGREEN UPRIGHT TREE, MALE VERSION
JM	N#&	12	JUNIPERUS VIRGINIANA CORCORCOR	EMERALD SENTINEL EASTERN RED CEDAR	6' HEIGHT	1 GALLON CONT	20' HEIGHT AND 8' SPREAD	NARROW EVERGREEN UPRIGHT TREE
SHRUBS AND PERENNIALS AND GRASSES	KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER TYPE	MATURE SIZE	REMARKS
CS	* N	19	CORNUS STOLONIFERA 'ARCTIC FIRE'	ARCTIC FIRE REDTIMG DOGWOOD	3' HEIGHT	B&B	5' HEIGHT AND SPREAD	COMPACT DECIDUOUS SHRUB, FLAME RED TWIGS
HQ	N	31	HYDRANGEA QUEROIFOLIA 'RUBY SLIPPERS'	RUBY SLIPPERS OAK LEAF HYDRANGEA	1.5' HT.	3 GALLON CONT	3'-4' HEIGHT AND SPREAD	DECIDUOUS SHRUB, RED FLOWERS SUMMER
IG	N#&	16	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	2'-3' HEIGHT	B & B	4' HEIGHT AND SPREAD	EVERGREEN SHRUB, COMPACT FORM
IGG	N#&	8	ILEX GLABRA	INKBERRY HOLLY	3' HEIGHT	B&B	6'-8' HEIGHT AND SPREAD	EVERGREEN SHRUB
PH	#&	9	PENNISETUM ALOPECUROIDES 'HAMELN'	HAMELN DRAWE FOUNTAIN GRASS	1' HEIGHT	1 GALLON CONT	2'-3' HEIGHT AND SPREAD	ORNAMENTAL GRASS

KEY:

- N = NATIVE PLANT OF NORTH AMERICA
- & = SALT SPRAY TOLERANT
- * = SPRING INSTALLATION ONLY
- # = SELDOM OR RARELY DAMAGED BY DEER AS PER RUTGERS AG AGENCY ([HTTP://NJAES.RUTGERS.EDU](http://njaes.rutgers.edu))

SODDING SPECIFICATIONS

THE CONTRACTOR WILL BE RESPONSIBLE FOR RE-ESTABLISHING ALL AREAS DISTURBED BY CONSTRUCTION. THE SODDING WILL BE IN ACCORDANCE WITH UNION COUNTY SOIL CONSERVATION DISTRICT STANDARDS. SPECIFIC SOD TYPE SHALL BE USED AS FOLLOWS:

- ALL DISTURBED AREAS SHALL BE SODDED AS SHOWN ON THE LANDSCAPE PLAN WITH ERNST ATHLETIC FIELD MIXTURE OR APPROVED EQUAL.
- SLOPED AREAS 3:1 AND GREATER SHALL RECEIVE IN COMBINATION WITH THE ABOVE SPECIFIED GRASS MIXTURE AN EROSION CONTROL MATTING BY BONTERRA AMERICA, PINELANDS NURSERIES, COLUMBUS, NJ, MODEL # CS2 OR APPROVED EQUAL.

THIS PLAN SHALL BE USED FOR LANDSCAPING PURPOSES ONLY.

9	11/09/2022	REVISED PER PLANNING BOARD REVIEW LETTERS	MS	BF
8	09/08/2022	REVISED PER TOWNSHIP DRC MEETING		BF
7	08/10/2022	REVISED PER TOWNSHIP COMPLETENESS REVIEW		BF
6	07/05/2022	REVISED SANITARY SEWER PROFILE	SP	BF
5	04/25/2022	REVISED PER UNION COUNTY COMMENTS DATED JAN. 6, 2022	SP	MS
4	12/08/2021	REVISED PER UNION COUNTY COMMENTS	SP	MS
3	11/01/2021	REVISED BUILDING FOOTPRINT	SP	MS
2	4/30/2021	REVISED PER NJDEP COMMENTS	MS	BF
1	4/28/2021	REVISED PER NJDEP COMMENTS	SP	MS
No.	Date	Revision	Revised By	Checked By
20 0 20 40				
SCALE IN FEET				



SARAH REBAR BISAH, LLA, PP
LICENSED LANDSCAPE ARCHITECT NJ LIC NO AS000639

LANDSCAPING PLAN FOR PRELIMINARY AND FINAL SITE PLAN FOR 201 WALNUT AVENUE BLOCK 484 LOT 19.01 TOWNSHIP OF CRANFORD UNION COUNTY NEW JERSEY			
DATE: 1/29/2021	DESIGNED BY: JB	SCALE: 1"=20'	PROJECT NUMBER: 16377.001
DRAWN BY: JB	CHECKED BY: BF	FIELD BOOK	SHEET: 7 of 12

PEG ON SLOPES GREATER
THAN 3 : 1

STAGGERED SOD
PANEL JOINTS

MATCH LINE

NOTES :

1. CULTIVATED SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS.
2. APPLY FERTILIZER AT THE RATE OF 500 POUNDS PER ACRE USING 10–20–10 RATIO OR AS DETERMINED BY SOIL TESTING.
3. SUPPLY PULVERIZED DOLOMITIC LIMESTONE AT THE RATE OF 2 TONS PER ACRE OR AS DETERMINED BY SOIL TESTING.
4. APPLY 300 POUNDS 38–0–0 PER ACRE IN LIEU OF TOP DRESSING OR AS DETERMINED BY SOIL TESTING.
5. PLACE SOD STRIPS ON THE CONTOUR STARTING AT THE BOTTOM.
6. PLACE SOD WITH SNUG EVEN JOINTS THAT ARE STAGGERED.
7. ROLL OR TAMP SOD IMMEDIATELY FOLLOWING PLACEMENT.
8. ON SLOPES GREATER THAN 3 TO 1 SECURE SOD TO SURFACE SOIL WITH WOOD PEGS, WIRE STAPLES, OR SPLIT SHINGLES (8 TO 10 INCHES LONG BY 3/4 OF AN INCH).
9. ANCHOR SOD IN WATER CARRYING CHANNELS WITH HEAVY JUTE OR PLASTIC NETTING.
10. SOD SHOULD BE WATERED UNTIL MOISTURE PENETRATES THE SOIL LAYER BENEATH THE SOD TO A DEPTH OF 4 INCHES. MAINTAIN OPTIMUM MOISTURE FOR AT LEAST TWO WEEKS.

SOD INSTALLATION DETAIL

NOT TO SCALE

SODDING SPECIFICATIONS

THE CONTRACTOR WILL BE RESPONSIBLE FOR RE-ESTABLISHING ALL AREAS DISTURBED BY CONSTRUCTION. THE SODDING WILL BE IN ACCORDANCE WITH UNION COUNTY SOIL CONSERVATION DISTRICT STANDARDS. SPECIFIC SOD TYPE SHALL BE USED AS FOLLOWS:

- A. ALL DISTURBED AREAS SHALL BE SODDED AS SHOWN ON THE LANDSCAPE PLAN WITH ERNST ATHLETIC FIELD MIXTURE OR APPROVED EQUAL.
- B. SLOPED AREAS 3:1 AND GREATER SHALL RECEIVE IN COMBINATION WITH THE ABOVE SPECIFIED GRASS MIXTURE AN EROSION CONTROL MATTING BY BONTERRA AMERICA, PINELANDS NURSERIES, COLUMBUS, NJ, MODEL # CS2 OR APPROVED EQUAL.

NOTES:

1. ALL TREES UNDER 3" IN CALIPER SHALL BE STAKED ALL TREES 3" IN CALIPER AND GREATER SHALL BE GUYED
2. TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE
3. SET STAKES VERTICAL AND AT SAME HEIGHT
4. REMOVE ALL WIRE BASKETS PRIOR TO BACKFILLING THE PLANTING PIT.
5. ALL WIRE BASKETS SHALL BE REMOVED PRIOR TO BACKFILLING THE PLANTING PIT.

STAKES TO BE SET 2/3RDS UP TREE OR JUST AT FIRST BRANCHES SEE TREE STAKING AND GUYING DETAIL

20 GALLON TREE GATOR SLOW RELEASE WATERING BAG MODEL #98183 OR APPROVED EQUAL PROVIDE ONE BAG PER INSTALLED TREE FOR TREES LESS THAN 4" IN CALIPER, PROVIDE TWO PER TREE FOR LARGER SIZES-- BAGS TO BE REMOVED AFTER 6 MONTHS

4" SHREDDED HARDWOOD MULCH-- KEEP MULCH AWAY FROM ROOT COLLAR AS DESCRIBED IN PLANTING NOTES. MULCH VOLCANOES ARE NOT PERMITTED

6" SOIL MOUND FOR FOR WATER RETENTION

REMOVE ALL PLASTIC MATERIAL, BURLAP SYNTHETIC BURLAP, STRING OR CONTAINERS AT THE TIME OF PLANTING

BACKFILL AUGMENTED WITH TOPSOIL

STAKES TO EXTEND 18" BELOW TREE PIT IN UNDISTURBED GROUND

PLANTING AREA SHALL BE 12" WIDER THAN ROOTBALL RADIUS

DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

NOTES:

1. ALL EVERGREEN TREES TO BE STAKED AND/OR GUYED AS SPECIFIED IN THE DETAIL AND THE PLANTING NOTES
2. TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE
3. NEVER CUT LEADERS.
4. PRUNE ONLY TO REMOVE DAMAGED OR BROKEN BRANCHES. SEE TREE PRUNING DETAIL.
5. STAKES SHALL BE WHITE OR RED CEDAR, OAK, OR LOCUST TREATED WITH ACCEPTABLE WOOD PRESERVATIVE

SET 2 STAKES OR GUYS 1/2 TO 2/3rd's UP HEIGHT OF TREE. SEE TREE STAKING AND GUYING DETAIL

4" OF MULCH KEEP MULCH AWAY FROM ROOT COLLAR (SEE PLANTING NOTES FOR MATERIAL TYPES) MULCH VOLCANOES ARE NOT PERMITTED

MOUND MULCH 6 INCHES HIGH TO FORM SAUCER

FINAL GRADE

REMOVE ALL PLASTIC MATERIAL SYNTHETIC BURLAP AND STRING OR CONTAINERS AT THE TIME OF PLANTING

PLANTING MIXTURE AS SPECIFIED IN PLANTING NOTES

FERTILIZER TABLET/PACKET (2 OR 3)

SCARIFY TO 4" DEPTH AND RECOMPACT

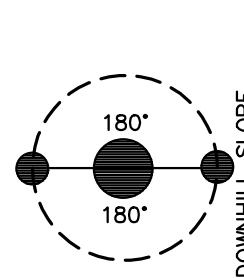
STAKES TO EXTEND 18" BELOW TREE PIT IN UNDISTURBED GROUND

ROOTBALL ON UNDISTURBED SOIL

NOTE: ALL WIRE BASKETS SHALL BE REMOVED PRIOR TO BACKFILLING THE PLANTING PIT.

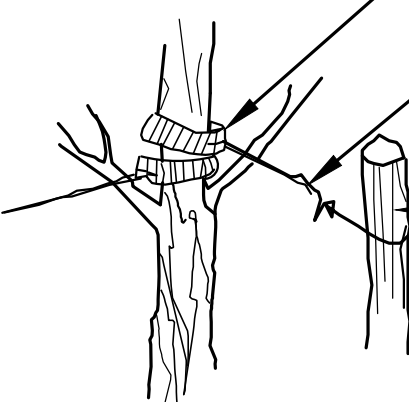
EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE



STAKES TO BE PLACED IN LINE WITH PREVAILING WINDS

STAKING PLAN SCHEMATIC



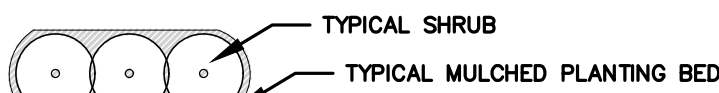
STAKING DETAIL

RUBBER HOSE CHAFING GUARD, 2 PLY, COLOR BLACK
DOUBLE STRAND #12 GALV. WIRE, NEATLY TWISTED

2 WOOD STAKES PER TREE
STAKES TO BE DRIVEN INTO UNDISTURBED SOIL OUTSIDE OF PLANTING HOLE A MINIMUM OF TWO FEET.
HEIGHT OF STAKES WHEN DRIVEN SHALL BE 5 FOOT ABOVE FINISHED GROUND LEVEL.
DIAMETER OF STAKES SHALL BE 2 INCHES MINIMUM.

TREE STAKING DETAIL

NOT TO SCALE



NOTE: CONTRACTOR TO PROVIDE A MULCHED PLANTING BED FOR SHRUBS GROUPED TOGETHER. MULCHED BEDS MAY VARY IN SHAPE AND SIZE TO CONFORM WITH SHRUB LAYOUT.

TYPICAL PLANTING BED PLAN VIEW

MAINTAIN SAME GROUND LINE AS IN THE NURSERY

THIN BRANCHES AND FOLIAGE (NOT ALL BRANCH TIPS) BY 1/3, RETAINING NORMAL PLANT SHAPE (EXCEPT EVERGREEN MATERIAL)

SET ROOT COLLAR AT FINISHED GRADE

REMOVE ALL PLASTIC MATERIAL SYNTHETIC BURLAP AND STRING OR CONTAINERS AT THE TIME OF PLANTING

4" OF MULCH KEEP MULCH AWAY FROM ROOT COLLAR

BACKFILL AUGMENTED WITH TOPSOIL

SCARIFY TO 4" DEPTH AND RECOMPACT

COMPACTED SUBGRADE

6" MIN.

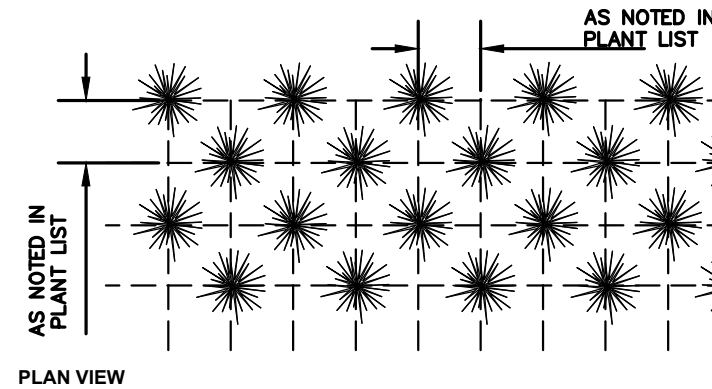
2" - 3" TO TOP OF BALL

DEPTH SHALL DEPTH NEEDED TO SET ROOT COLLAR AT FINISHED GRADE

NOTE: DO NOT PRUNE EVERGREEN SHRUBS EXCEPT TO REMOVE DEAD AND BROKEN BRANCHES

SHRUB PLANTING DETAIL

NOT TO SCALE



NOTE: GROUNDCOVER PLANTS SHALL BE PLACED AS SHOWN IN DOUBLE STAGGERED ROWS

GROUNDCOVER PLANT (TYP.)

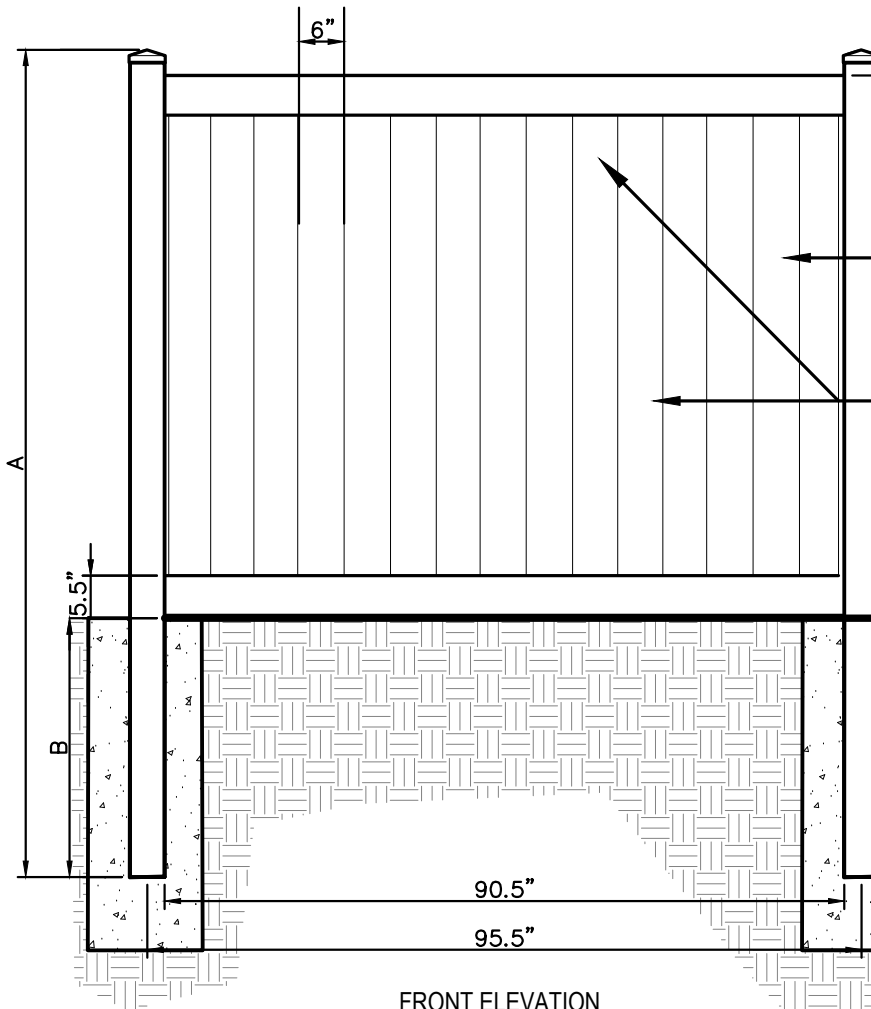
MULCH (DELAWARE RIVER ROCK OR WOODCHIPS - DEPTH AND MATERIAL AS SPECIFIED ON LANDSCAPE PLAN, PLANTING NOTES AND DETAILS)

INCORPORATE 2" OF PEAT INTO 6 INCHES OF PLANTING MIXTURE AS SPECIFIED IN THE PLANTING NOTES

UNDISTURBED SUBGRADE

GROUNDCOVER PLANTING DETAIL

NOT TO SCALE



6' HIGH VINYL PRIVACY FENCE TO EXTEND THE LENGTH OF PROPERTY LINE AS SHOWN ON PLANS, COLOR SHALL BE WHITE

6" WIDE TONGUE AND GROOVE PRIVACY SLATS WITH DIAGONAL LATTICE TOP

±12" DIAMETER FOOTING

6' VINYL PRIVACY FENCE DETAIL

NOT TO SCALE

NOTES:

1. FENCE SHALL BE 6' VINYL PRIVACY FENCE, MODEL V3215D BY ILLUSIONS VINYL FENCE, MEDFORD, NEW YORK OR APPROVED EQUAL (WWW.ILLUSIONSFENCE.COM)
2. FINISH SHALL BE SELECTED BY OWNER FROM AVAILABLE STANDARD GRAND ILLUSIONS VINYL WOODBOND/WOODGRAINS
3. COLOR OF ALL MEMBERS SHALL BE WHITE
4. CONTRACTOR SHALL PROVIDE SIGNED AND SEALED SHOP DRAWINGS FOR FENCE AND FOOTING REVIEW AND APPROVAL



METAL BENCH DETAIL

NOT TO SCALE

NOTES:

1. 6' LONG METAL BENCH SHALL BE MANUFACTURED BY THE BENCH FACTORY, TREETOPPRODUCTS.COM, (866) 275-0823
2. STEEL BENCH MODEL 2ZK2046 WITH HORIZONTAL CEDAR COLOR SLATS.
3. BENCH SHALL HAVE PREDRILLED MOUNTING HOLES FOR SURFACE MOUNT.



METAL TRASH RECEPTACLE DETAIL

NOT TO SCALE

NOTES:

1. TRASH RECEPTACLES SHALL BE OUTDOOR SLATTED STEEL TRASH CAN WITH FLAT LID, 36 GALLON, BLACK, AS MANUFACTURED BY GLOBAL INDUSTRIAL™ MODEL 237726BK. COLOR TO BE BRONZE OR AS PER OWNER'S SELECTION FROM FULL RANGE OF STANDARD COLORS PROVIDED BY THE MANUFACTURER.

LANDSCAPING NOTES AND DETAILS FOR

PRELIMINARY AND FINAL SITE PLAN FOR

201 WALNUT AVENUE BLOCK 484 LOT 19.01

TOWNSHIP OF CRANFORD
UNION COUNTY NEW JERSEY

DATE: 1/29/2021	DESIGNED BY: JB	SCALE:	PROJECT NUMBER: 16377.001
DRAWN BY: JB	CHECKED BY: BF	FIELD BOOK	SHEET: 8 of 12



SARAH REBAR BISAHA, LLA, PP
LICENSED LANDSCAPE ARCHITECT NJ LIC NO AS000639

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Luminaire Schedule			Arr. Watts	Arr. Lum. Lumens	LLF
Symbol	Label	Description			
■	A	MCGRAW #CNC-F02-LED-E1-WQ CEILING FIXTURE AT + 9' MOUNTING HEIGHT	20.49	2352	0.900
■	B	BARRON #WLZ1-3-4K WALL MOUNTED FIXTURE AT 8.5' MOUNTING HEIGHT	40	4194	0.900
■	C	STREETWORKS #UTLD-PA1-60-740-U-T4W-COLOR-HSS-OPTIONS +14' POLE, 16' MOUNTING HEIGHT OVERALL	64	5671	0.900
■	D1	GENERATION BRANDS #OL2201BB + 9w A19 LED LAMP	9.13	912	0.900
■	D2	GENERATION BRANDS #OL2202BB + 15w A19 LED LAMP	15	1784	0.900

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Area	Illuminance	Fc	1.9	9.9	0.0	N.A.	N.A.
Chestnut Sidewalk	Illuminance	Fc	0.2	2.7	0.0	N.A.	N.A.
Front Porches	Illuminance	Fc	1.8	3.4	0.0	N.A.	N.A.
Drive Lane	Illuminance	Fc	5.5	9.0	1.6	3.5	5.6
Parking Area	Illuminance	Fc	5.0	9.9	1.8	2.8	5.5

LIGHTING NOTES

- DO NOT INSTALL PROPOSED LIGHTS ON TOP OF ANY PROPOSED OR EXISTING UNDERGROUND UTILITIES. FIELD ADJUST LIGHTS AS NEEDED AS DIRECTED BY THE PROJECT PROFESSIONAL TO ACCOMMODATE ANY POTENTIAL CONFLICTS.
- ALL POLE MOUNTED FIXTURES SHALL HAVE 2'-6" CONCRETE PEDESTALS.
- LIGHTING LEVELS SHOWN ON THIS PLAN DO INCLUDE ANY CONTRIBUTIONS FROM EXISTING STREET LIGHT FIXTURES.
- LIGHTS SHALL BE EQUIPPED WITH OCCUPANCY/DAYLIGHT SENSORS WITH A TIMER SYSTEM OVERRIDE OPTION.
- FIXTURES ARE CALCULATED WITH 0.90 LIGHT LOSS FACTOR . LIGHT LEVELS WILL BE 10% HIGHER THAN SHOWN WHEN FIRST INSTALLED.
- FIXTURES ARE DIMMABLE WITH 0-10V CONTROLS.



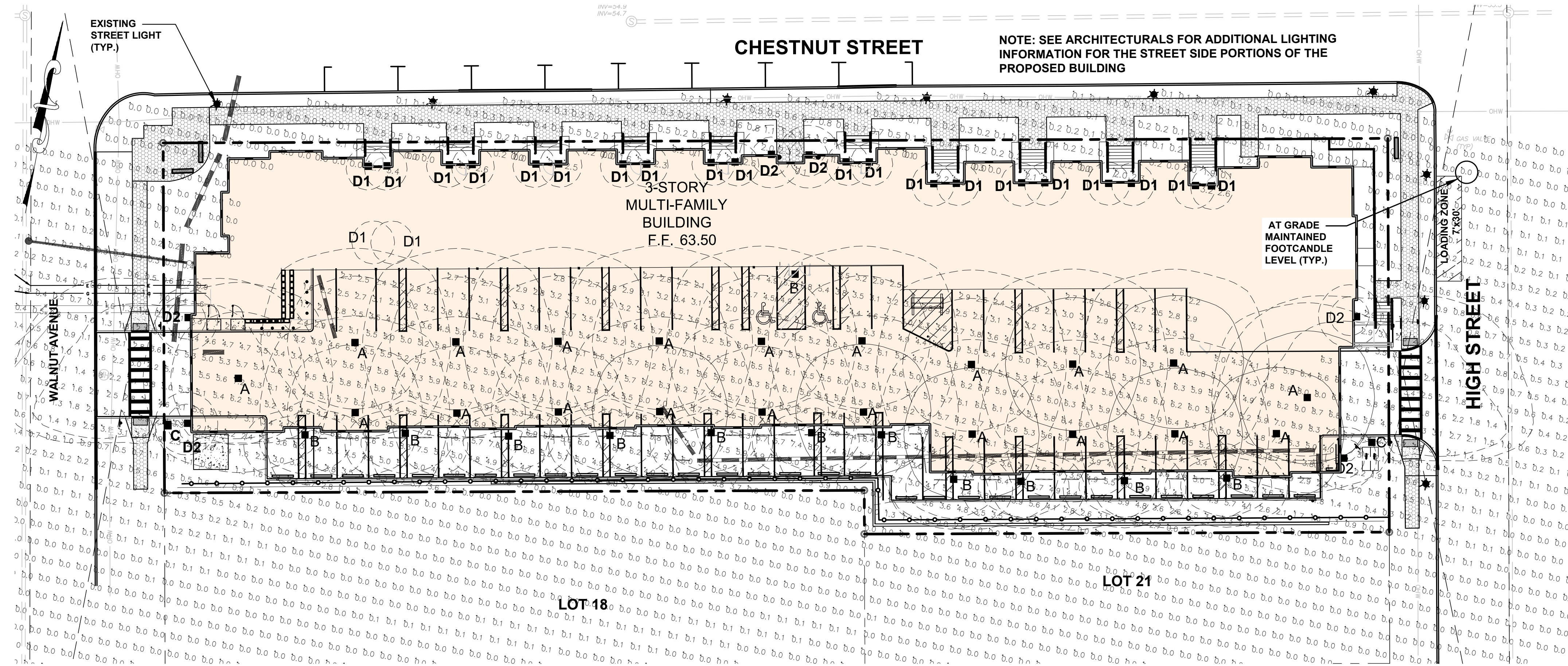
WALL MOUNTED LIGHTS SHALL BE MODEL WLZ SERIES ZERO UPLIGHT LED WALLPACK MANUFACTURED BY BARRON LIGHTING GROUP (WWW.BARRONLTG.COM) OR APPROVED EQUAL. COLOR AND FINISH OF FIXTURE TO BE SELECTED BY OWNER FROM STANDARD AVAILABLE FINISHES AND COLORS AND SHALL MATCH POLE MOUNTED FIXTURES

LOCAL REP: ANDY CHILDERS, ENTERPRISE LIGHTING (ACHILDERS@ENTERELS.COM)

LED LIGHT SOURCE

WALL MOUNTED LIGHT FIXTURE DETAIL (FIXTURE B)
NOT TO SCALE

NOTE: SEE ARCHITECTURALS FOR ADDITIONAL LIGHTING INFORMATION FOR THE STREET SIDE PORTIONS OF THE PROPOSED BUILDING



OL2201BB: Medium Lantern OL2202BB: Large Lantern



COLOR AND FINISH OF FIXTURE TO BE SELECTED BY OWNER FROM STANDARD AVAILABLE FINISHES AND COLORS AND SHALL MATCH POLE MOUNTED FIXTURES

WALL MOUNTED LIGHTS SHALL BE MANUFACTURED BY GENERATION LIGHTING (WWW.GENERATIONLIGHTING.COM) OR APPROVED EQUAL,

LOCAL REP: ANDY CHILDERS, ENTERPRISE LIGHTING (ACHILDERS@ENTERELS.COM)

LED LIGHT SOURCE

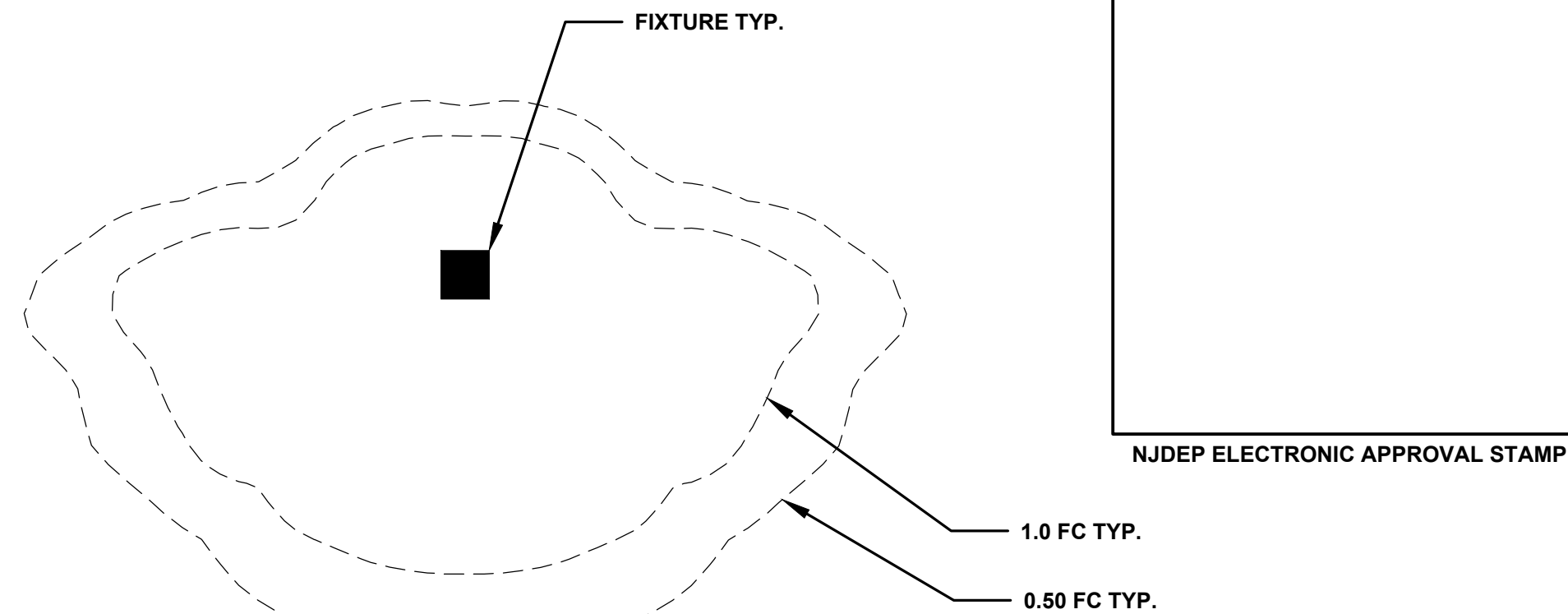
WALL MOUNTED LIGHT FIXTURE DETAIL (FIXTURES D1, D2)

NOT TO SCALE

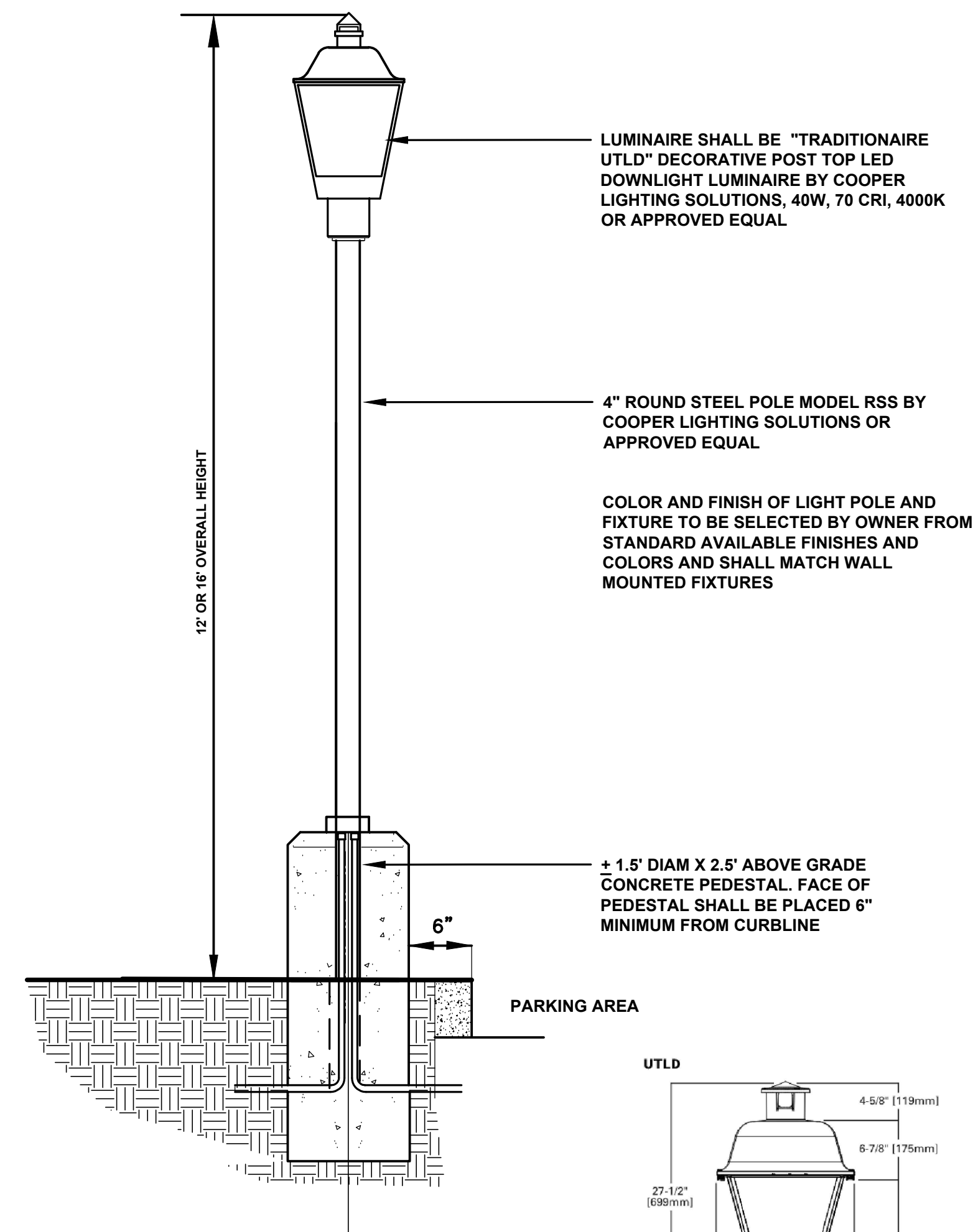


CEILING MOUNTED LIGHT FIXTURE DETAIL (FIXTURE A)

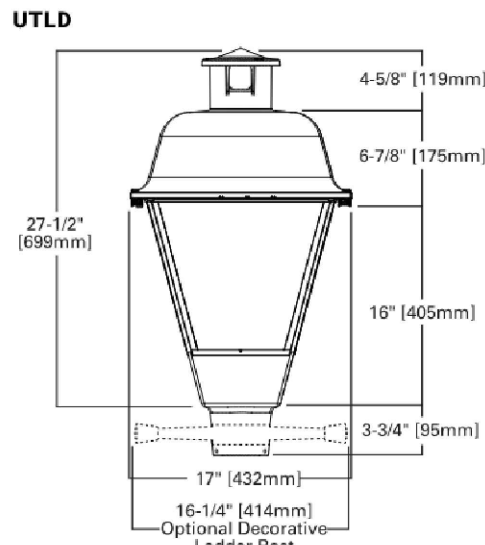
NOT TO SCALE



PHOTOMETRIC CONTOUR DETAIL
NOT TO SCALE



POLE MOUNTED LIGHT FIXTURE DETAIL (FIXTURE C)
NOT TO SCALE



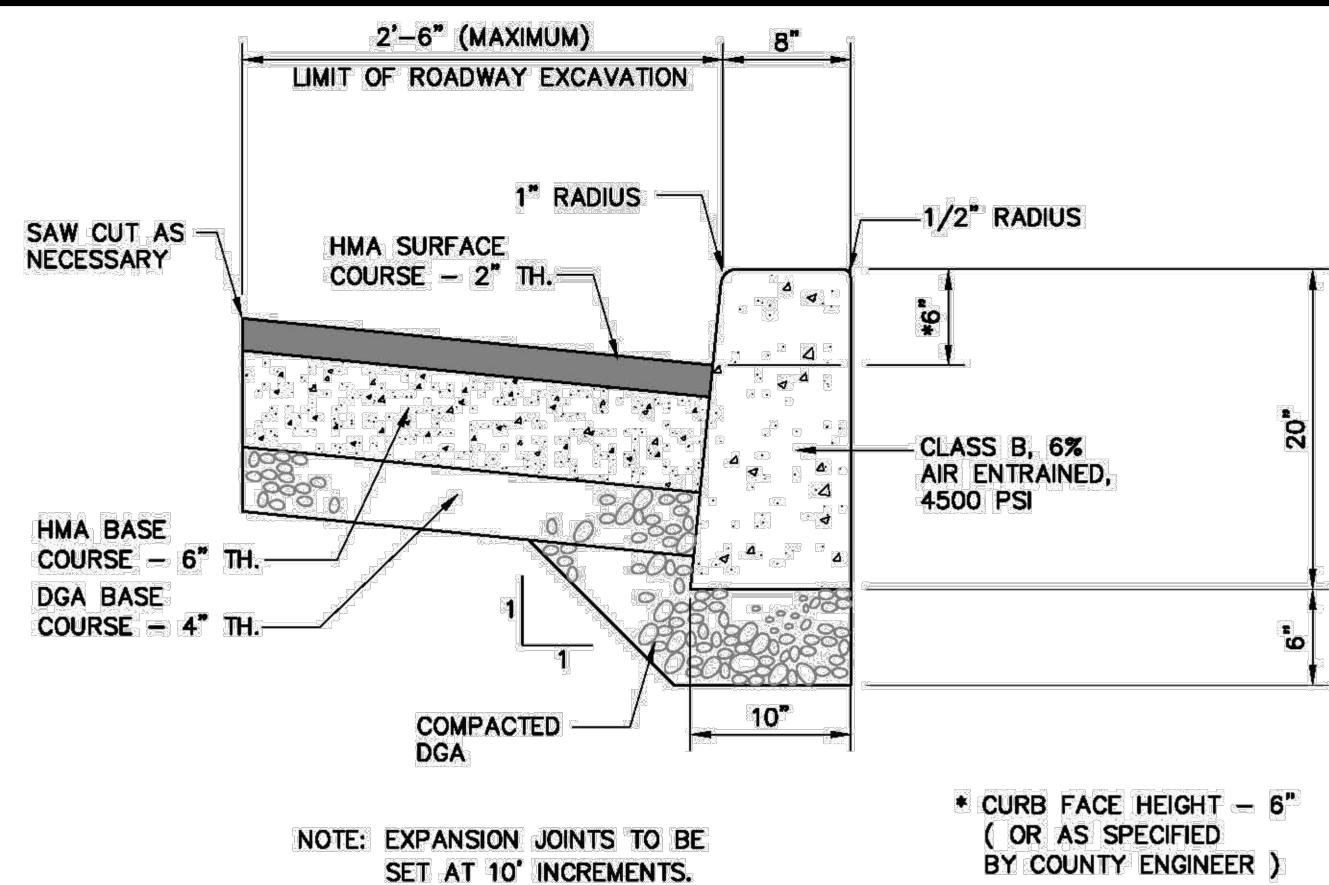
9	11/09/2022	REVISED PER PLANNING BOARD REVIEW LETTERS	MS	BF
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No.	Date	Revision	Revised By	Checked By
20 0 20 40 SCALE IN FEET				



BAHRAM FARZANEH, PE, PP
PROFESSIONAL ENGINEER, NJ LIC. NO. 24GE03454800

LIGHTING PLAN FOR PRELIMINARY AND FINAL SITE PLAN FOR 201 WALNUT AVENUE BLOCK 484 LOT 19.01 TOWNSHIP OF CRANFORD UNION COUNTY NEW JERSEY			
DATE: 1/29/2021	DESIGNED BY: SRB	SCALE: 1"=20'	PROJECT NUMBER: 16377.001
DRAWN BY: SRB	CHECKED BY: BF	FIELD BOOK	SHEET: 9 of 12

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HMA SURFACE COURSE - NJDOT SUPERPAVE HOT MIX ASPHALT SURFACE COURSE. (AS PER ENGINEER'S SPECIFICATIONS).

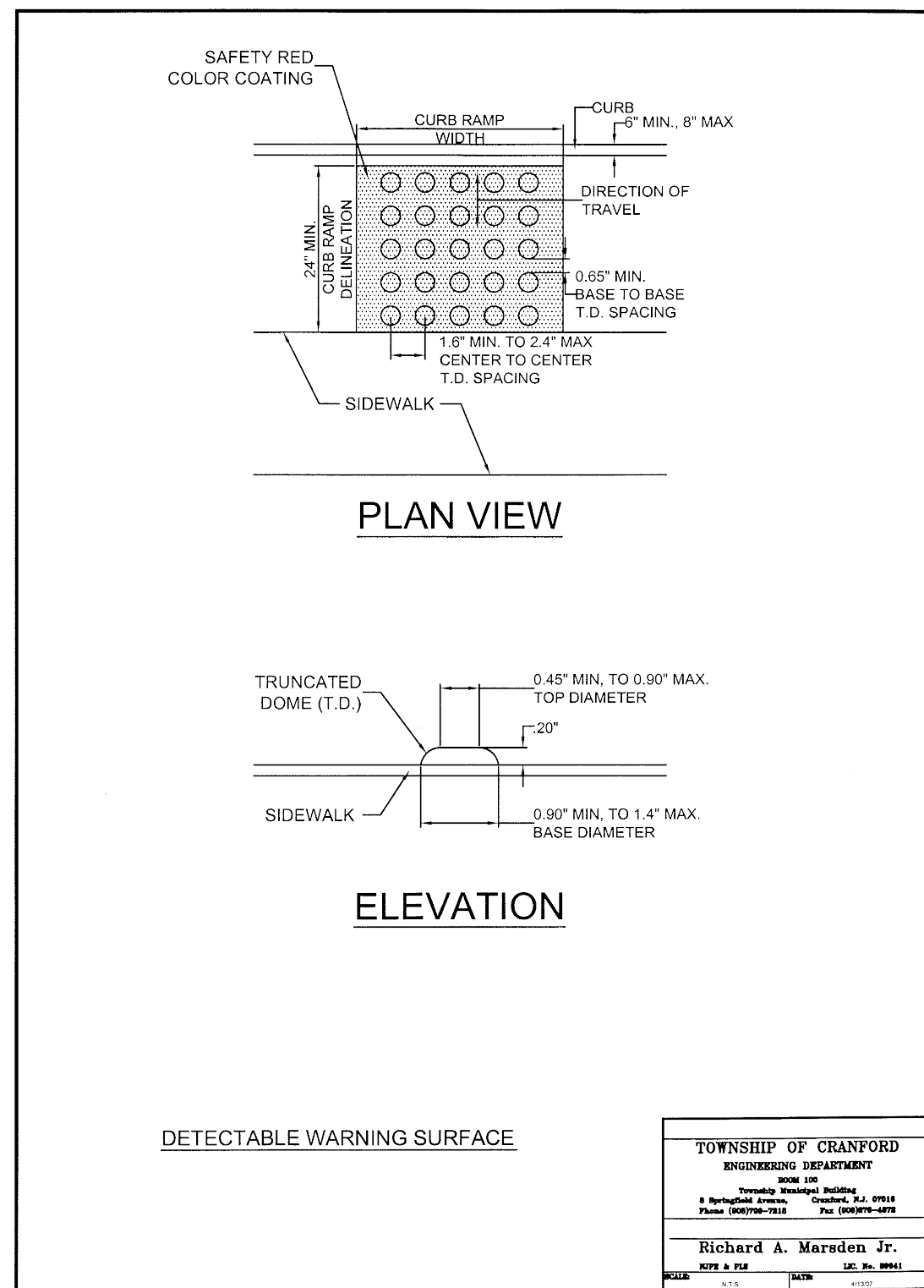
HMA BASE COURSE - NJDOT SUPERPAVE HOT MIX ASPHALT 19.5 M64 BASE COURSE. NOTE: CONSTRUCT IN LAYERS NOT MORE THAN 3" COMPACTED THICKNESS.

DGA BASE COURSE - NJDOT DENSE GRADED AGGREGATE BASE COURSE 4" THICK (FORMERLY NJDOT QUARRY PROCESSED STONE)

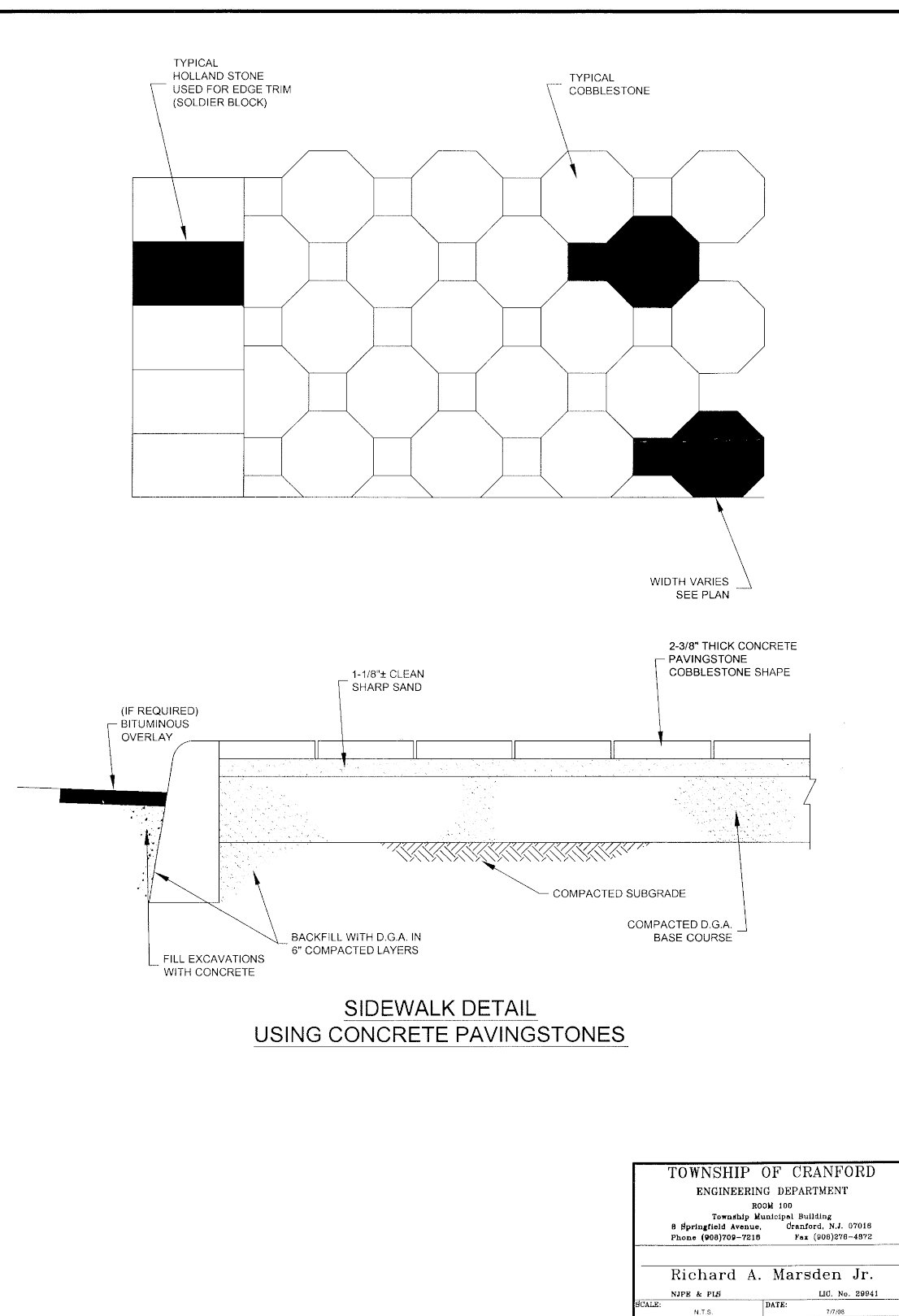
TYPICAL ROADWAY EXCAVATION & RESTORATION AT CURBS

COUNTY SITE DESIGN DETAIL 1.02
NOT TO SCALE

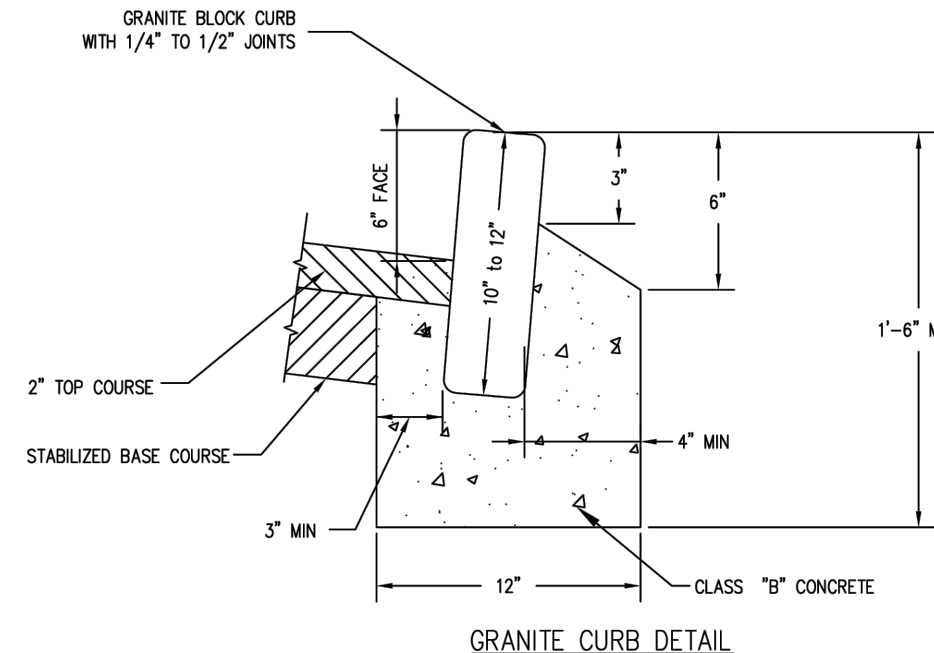
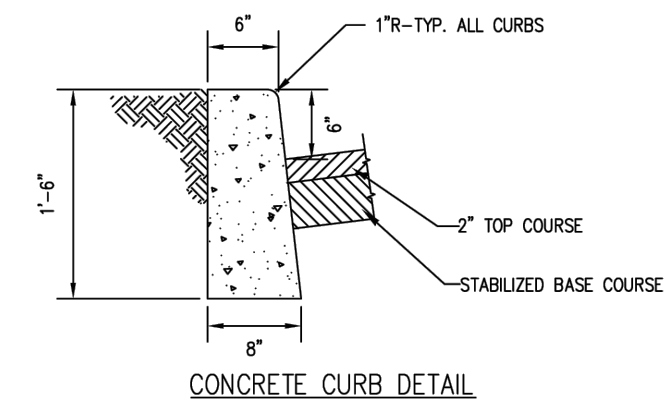
N:\Construction Details\DETAIL BOOK\DETAILS 1-12\07\DETECTABLE WARNING SURFACE.dwg 4/30/2009 11:27:27 AM



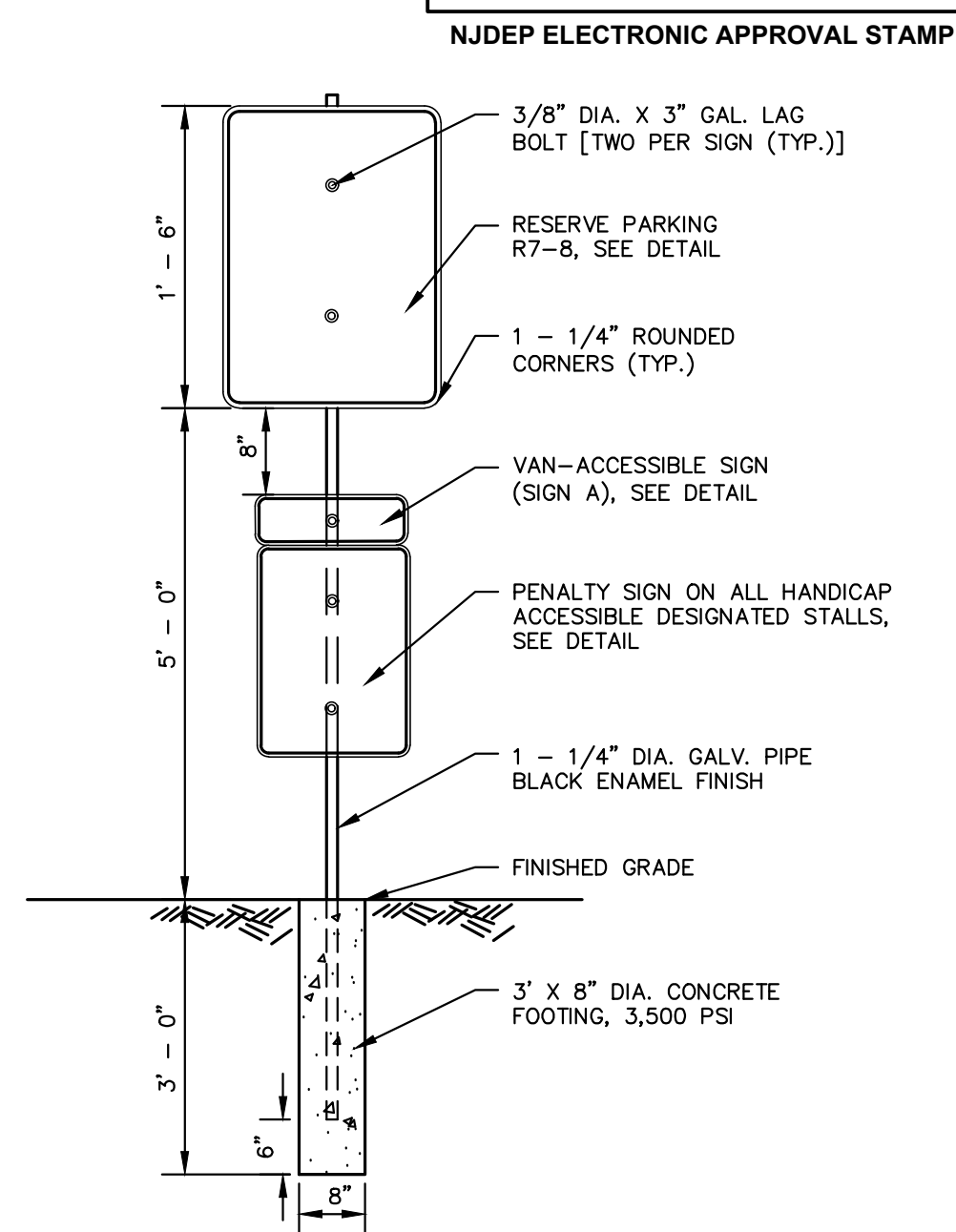
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GENERAL NOTES:
1. USE 4500 P.S.I. CONCRETE TO MEET N.J.D.O.T. STANDARDS.
2. SIX (6") INCH FACE TO BE PROVIDED ON CURB.
3. PROVIDE PREPARED BITUMINOUS FIBER EXPANSION JOINTS.
4. 1/2" THICK AT 20' O.C. (MAX.) INTERVALS. PROVIDE TRANSVERSE JOINTS EVERY 10 FEET.
5. INSTALLATION OF CURB INCLUDES SAW CUTTING AND REPAIR OF EXISTING PAVEMENT UP TO 2 FEET OFF THE EDGE OF CURB.
6. REPAIR ANY LAWN, DAMAGED DURING CONSTRUCTION WITH IN-KIND MATERIALS AND THICKNESS.



TOWNSHIP OF CRANFORD
ENGINEERING DEPARTMENT
2000 100
4 Springfield Avenue Building
Cranford, NJ 07016
Phone (908)768-1010 Fax (908)768-4872
Richard A. Marsden Jr.
N.J. Reg. No. 10011



- NOTES:
- ALL SIGNS TO CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
 - OUTSIDE EDGE OF CLOSEST TO ROADWAY SHALL BE A MINIMUM DISTANCE OF 2'
 - THE CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO PURCHASE OF ANY MATERIALS.

ADA COMPLIANT PARKING SIGN AND SIGN POST DETAIL

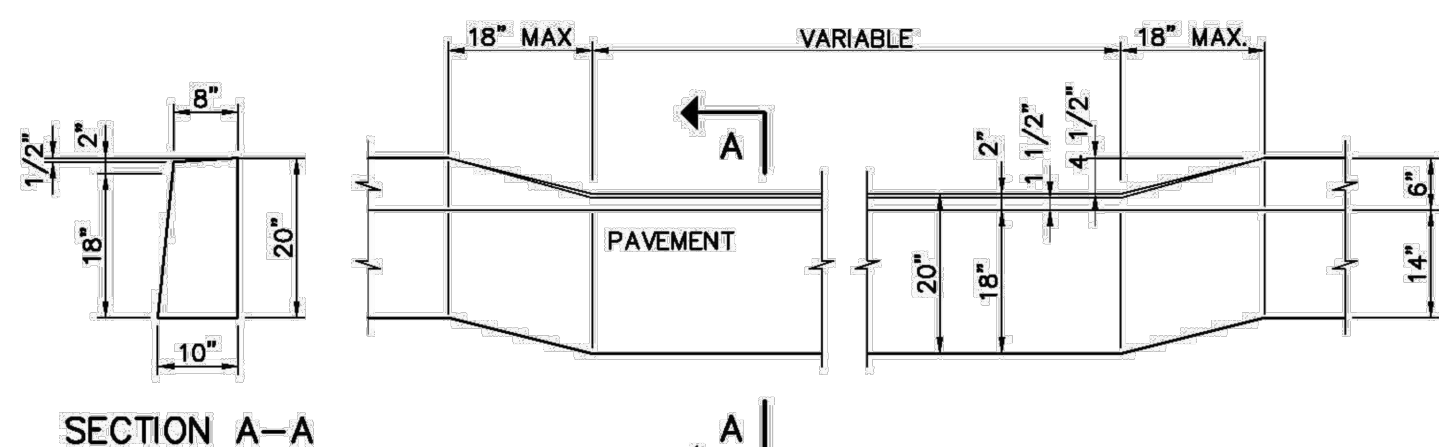
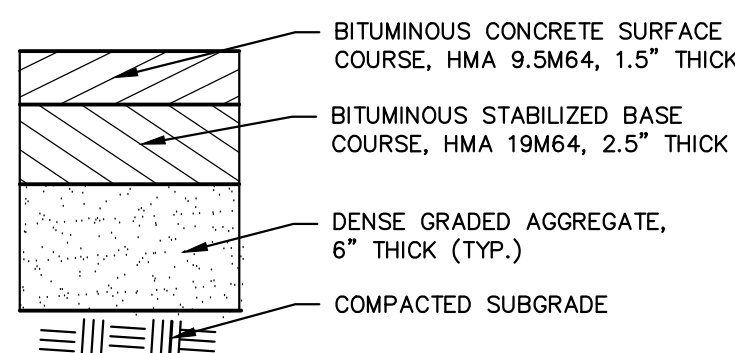
NOT TO SCALE

PAVEMENT STRIPING/MARKING NOTES:

IF NOT OTHERWISE INDICATED PAVEMENT STRIPING SHALL CONFORM TO THE FOLLOWING:

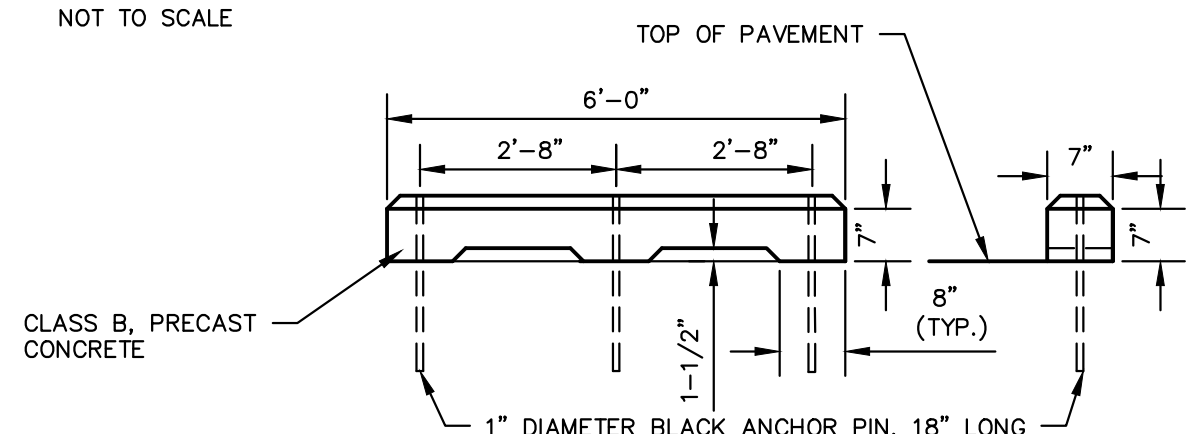
PARKING STRIPES	4" WIDE WHITE LINES
STOP LINES	12" WIDE WHITE LINES (4' MINIMUM FROM CROSSWALK)
"LETTERING"	18" HIGH PAINTED WHITE, UNLESS OTHERWISE SPECIFIED
TRAFFIC MARKINGS	PAINTED SOLID WHITE, UNLESS OTHERWISE SPECIFIED
HANDICAPPED RAMPS	SAFETY RED MOISTURE CURED POLYURETHANE COATING WITH SELF-CONTAINED WHITE RUBBER GRIT OR PREFORMED PLASTIC MARKING TAPE AS PER NJDOT STANDARDS

ALL STRIPING SHOULD BE EPOXY BASED PAINT. ALL PAVEMENT MARKINGS (ARROWS, STOP BARS, CROSSWALKS, ETC.) SHOULD BE EXTRUDED THERMOPLASTIC



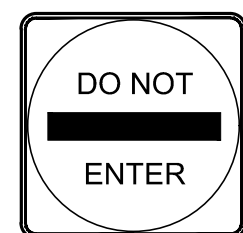
DEPRESSED CURB AT DRIVEWAY

COUNTY SITE DESIGN DETAIL 1.07
NOT TO SCALE



DO NOT ENTER SIGN DETAIL

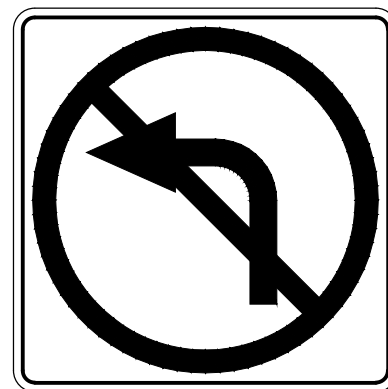
NOT TO SCALE



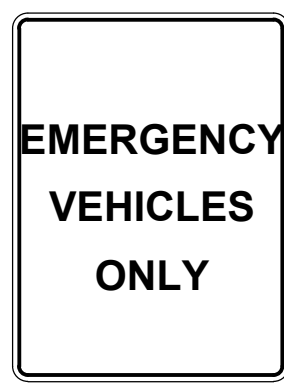
R5-1
750 x 750MM
(0.6 S.M.)
[30" x 30"]
[5 S.F.]

EMERGENCY ACCESS VEHICLES ONLY SIGN

NOT TO SCALE



R3-2
24" x 24"



18" x 24"

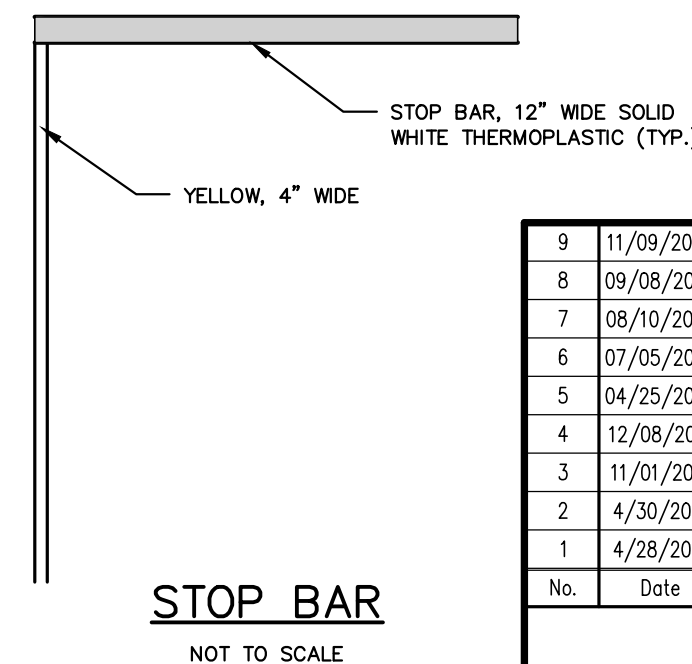


R1-1
30" x 30"

24" x 24" STOP SIGN, R1-1 (TYPICAL FOR ALL SIGNS)

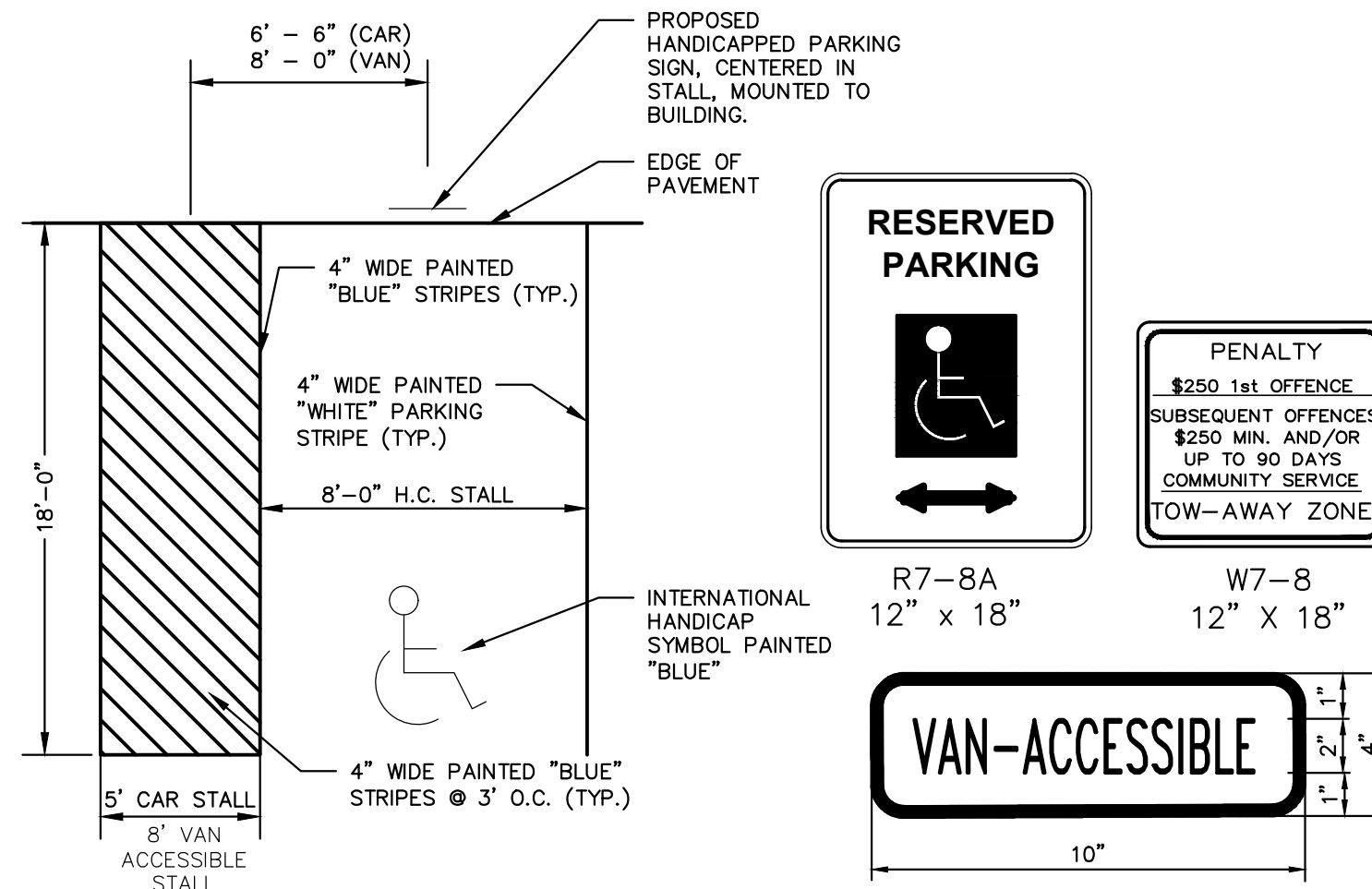
STOP SIGN

NOT TO SCALE



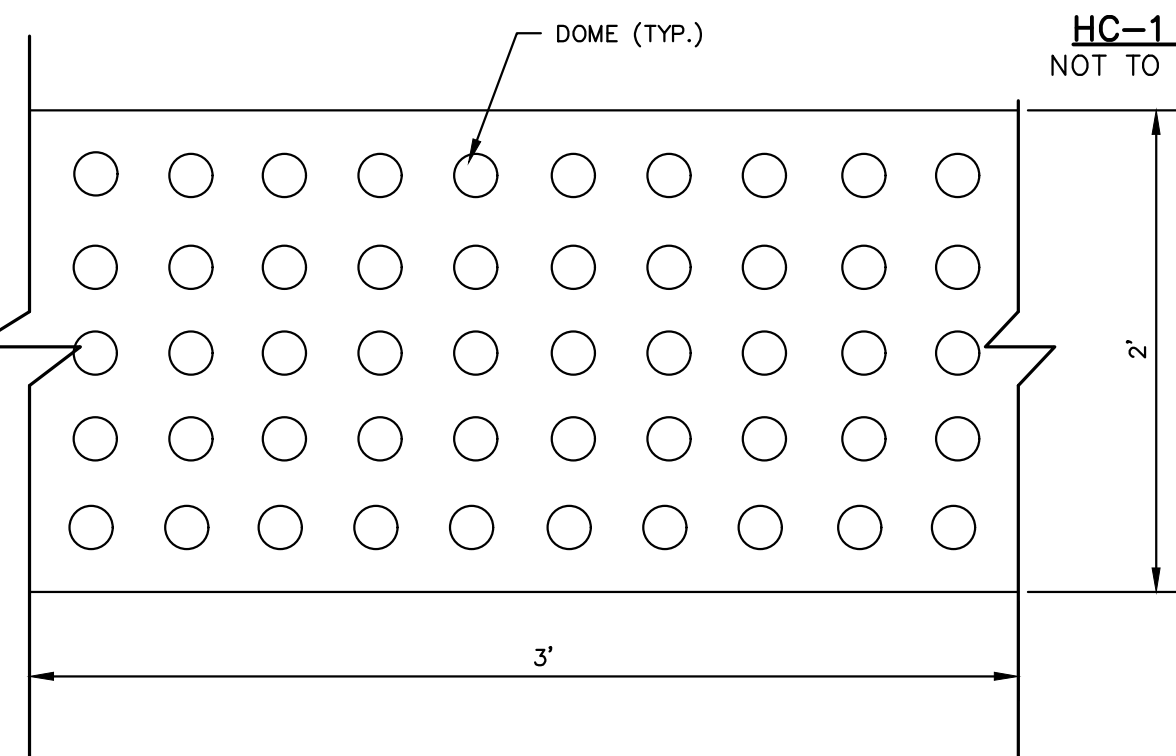
HANDICAPPED PARKING STALL

NOT TO SCALE



HANDICAPPED PARKING STALL

NOT TO SCALE



DETECTABLE WARNING STRIP DETAIL

NOT TO SCALE

9	11/09/2022	REVISED PER PLANNING BOARD REVIEW LETTERS	MS	BF
8	09/08/2022	REVISED PER TOWNSHIP DRC MEETING		BF
7	08/10/2022	REVISED PER TOWNSHIP COMPLETENESS REVIEW		BF
6	07/05/2022	REVISED SANITARY SEWER PROFILE	SP	BF
5	04/25/2022	REVISED PER UNION COUNTY COMMENTS DATED JAN. 6, 2022	SP	MS
4	12/08/2021	REVISED PER UNION COUNTY COMMENTS	SP	MS
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2	4/30/2021	REVISED PER NJDEP COMMENTS	MS	BF
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No.	Date	Revision	Revised By	Checked By

SCALE IN FEET

FPA
FRENCH & PARRELLO
ASSOCIATES

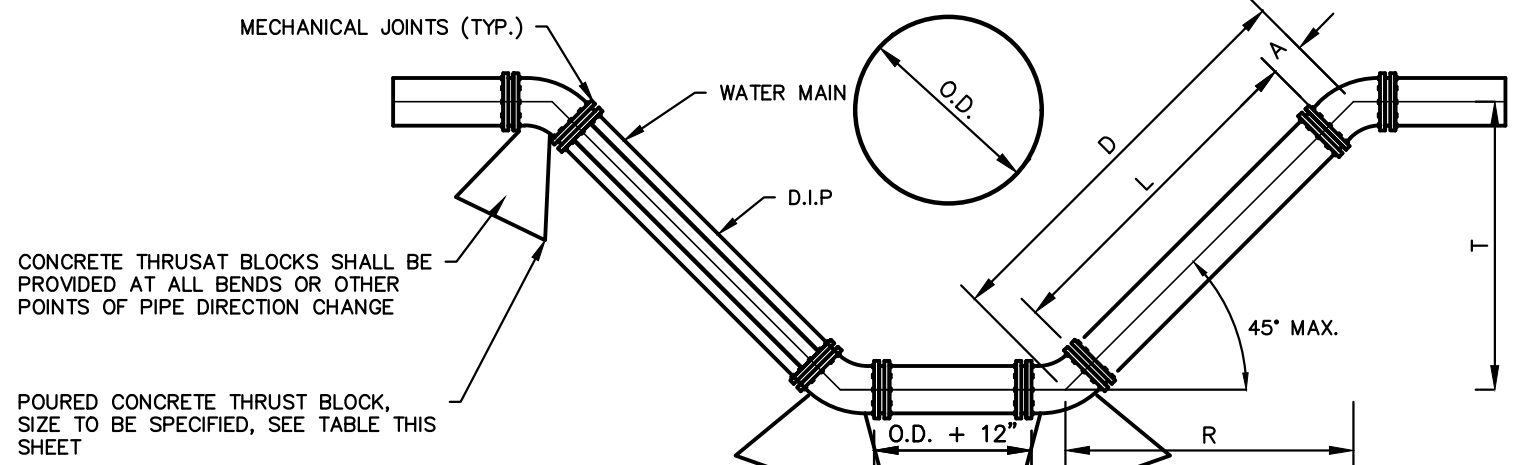
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PROFESSIONAL ENGINEER, NJ LIC. No. 24GE03454800

CONSTRUCTION DETAILS
FOR
PRELIMINARY AND FINAL SITE PLAN
FOR
201 WALNUT AVENUE
BLOCK 484 LOT 19.01
TOWNSHIP OF CRANFORD
UNION COUNTY NEW JERSEY

DATE: 1/29/2021	DESIGNED BY: KDW	SCALE: AS SHOWN	PROJECT NUMBER: 16377.001
DRAWN BY: KDW	CHECKED BY: BF	FIELD BOOK	SHEET: 10 of 12



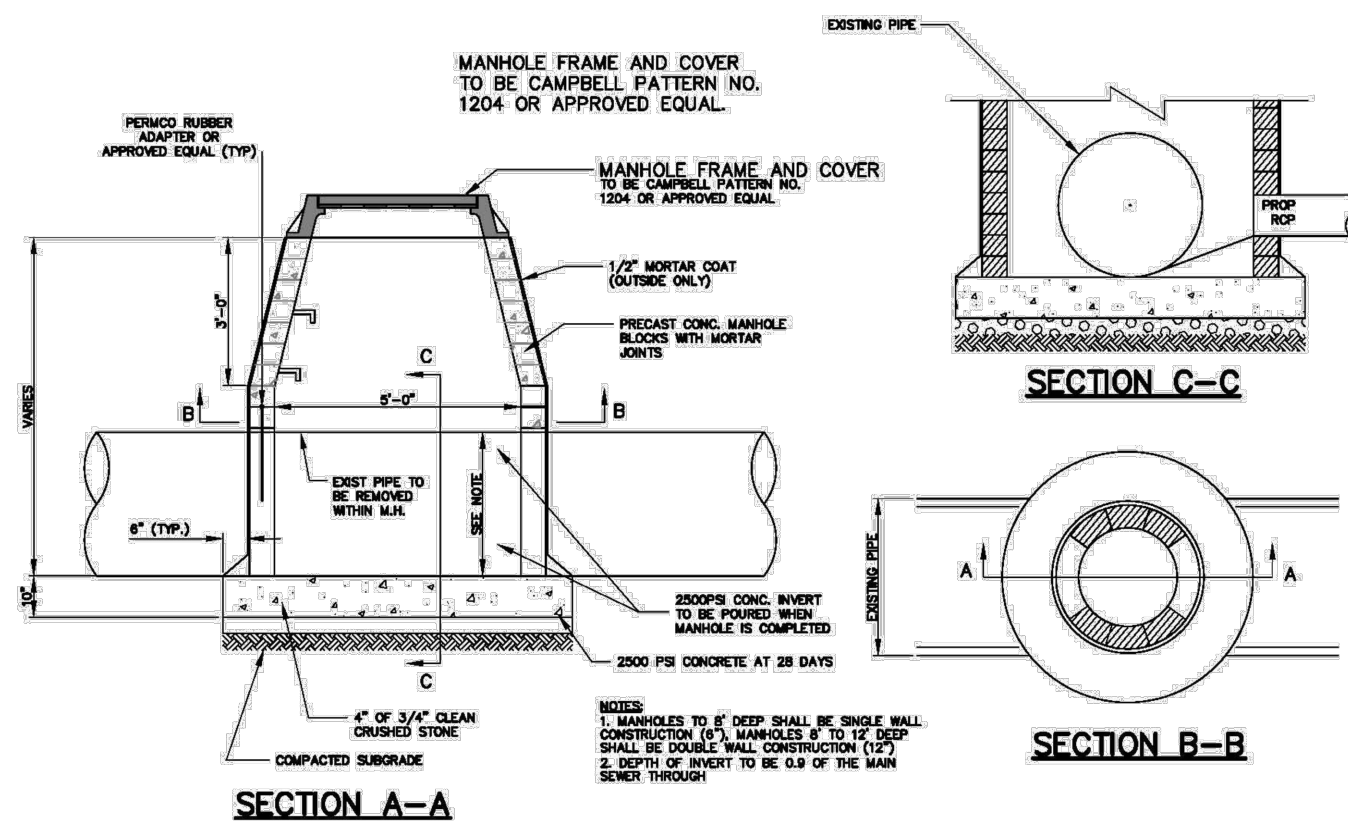
- NOTES:
1. WATER MAIN MAY BE LOOPEO ABOVE OBSTRUCTION, IF 3' MINIMUM COVER IS MAINTAINED ABOVE WATER MAIN.
 2. WATER MAIN MAY BE DUCTILE IRON CEMENT LINED PIPE ALL JOINTS SHALL BE MECHANICAL JOINT OR PUSH-ON AND ALL FITTINGS SHALL BE MECHANICAL JOINT CAST IRON.
 3. OFFSETS MAY BE SUBSTITUTED FOR A OR T UP TO 24" IF APPROVED BY THE ENGINEER.
 4. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS OR OTHER POINTS OF PIPE DIRECTION CHANGE.
 5. MINIMUM CLEARANCE BETWEEN OBSTRUCTING PIPE AND WATER MAIN SHALL BE 18" MINIMUM. CLEARANCE BETWEEN WATER MAIN AND OTHER OBSTRUCTIONS SHALL BE 6".
 6. TIE RODS SHALL BE UTILIZED TO RESTRAIN PIPE JOINTS, DETAILS OF THE TIE ROD ASSEMBLY SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. TIE RODS SHALL BE SUFFICIENT TO RESTRAIN THE THRUST DEVELOPED AT 100 P.S.I. WORKING PRESSURE.

MECHANICAL JOINTS			
ANGLE	"D" EQUALS	"R" EQUALS	"L" EQUALS
45°	Tx1.414	Tx1.000	D-2A
22 1/2°	Tx2.414	Tx2.414	D-2A
11 1/4°	Tx5.126	Tx5.027	D-2A

* CUT THE PIPE SOMEWHAT SHORTER THAN THEORETICAL TO ALLOW FOR SOME SLIGHT CLEARANCE IN THE JOINT

LOOPING WATER MAIN DETAIL

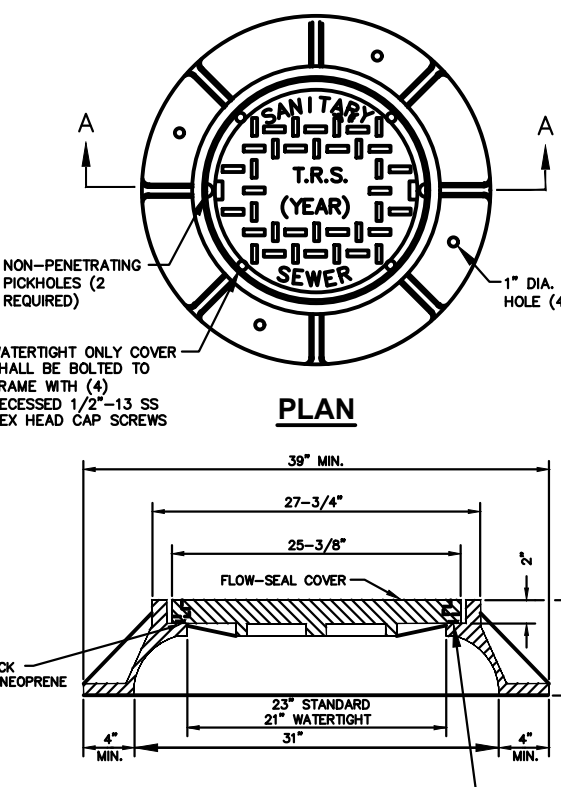
NOT TO SCALE



DOG HOUSE MANHOLE DETAIL

COUNTY SITE DESIGN DETAIL 1.31

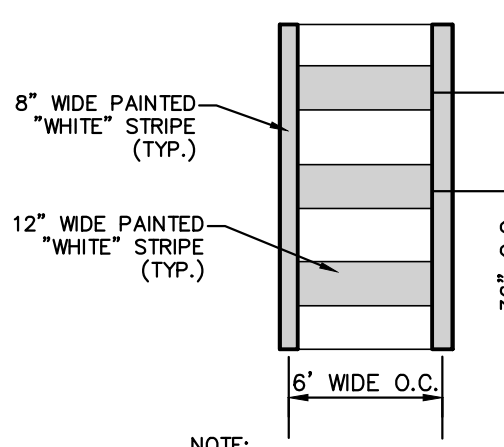
NOT TO SCALE



- NOTES:
1. STANDARD MANHOLE FRAME AND COVER SHALL BE PATTERN NO. 12028 W/ FLOW-SEAL COVER AS MANUFACTURED BY THE CAMPBELL FOUNDRY CO. OR APPROVED EQUAL. WATER TIGHT MANHOLE FRAME & COVER SHALL BE PATTERN 12028 - MODIFIED AS MANUFACTURED BY THE CAMPBELL FOUNDRY CO. OR APPROVED EQUAL.
 2. MANHOLE FRAMES AND COVERS TO BE HEAVY DUTY, CONFORMING TO A.S.T.M. SPECIFICATION A-48 CLASS 30-B WITHOUT SHOP COAT OF ASPHALTIC PITCH, AND SHALL BE DESIGNED FOR AASHTO H20-44 HIGHWAY LOADING.
 3. IN EASEMENTS AND REMOTE AREAS, WATER TIGHT COVERS AND FRAMES MUST BE PROVIDED.

SANITARY SEWER STANDARD OR WATER TIGHT SANITARY MANHOLE FRAME & COVER DETAIL

NOT TO SCALE

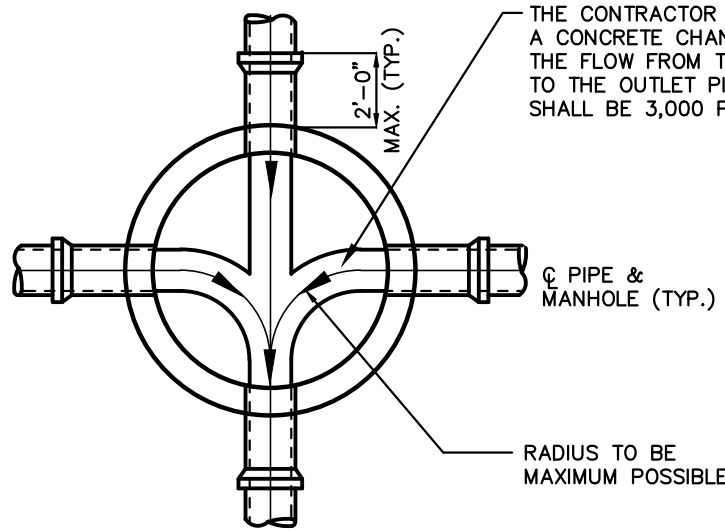


STANDARD OFF-SITE CROSSWALK DETAIL

NOT TO SCALE

MANHOLE NOTES

- GENERAL:
1. SHORTS SHALL BE USED AT MANHOLES.
 2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST O.S.H.A. STANDARDS, WHERE POSSIBLE.
 3. ALL CONSTRUCTION SHALL MEET STANDARD SPECIFICATION, THE LATEST REVISION.
- PRECAST CONCRETE MANHOLE (ASTM-478)
1. WHERE 5' AND 6' I.D. BASES ARE USED A TAPER SECTION CONNECTING BASE SECTION AND RISER SHALL BE REQUIRED AND SHALL HAVE A THICKNESS AS SHOWN. THE BASE SECTION AND RISER ALLOW FOR AT LEAST 6 FOOT MINIMUM VERTICAL CLEARANCE IN THE SCHEDULE.
 2. BASES TO BE AS SHOWN IN THE SCHEDULE.
- BRICK OR CONCRETE BLOCK MANHOLE (NOT SHOWN)
1. BRICK OR CONCRETE BLOCK MANHOLES MUST BE APPROVED BY THE AUTHORITY ENGINEER.
 2. SHOP DRAWINGS MUST BE SUBMITTED FOR ALL DETAILS.
- WORK AT EXISTING MANHOLE
1. THE CONTRACTOR SHALL CUT INTO THE MANHOLE AND COMPLETE THE CONNECTION USING A SUITABLE ADAPTOR AS REQUIRED AND APPROVED BY THE AUTHORITY ENGINEER.
 2. THE CONTRACTOR SHALL NOT INTERFERE WITH ANY EXISTING SEWERAGE SERVICE DURING THE PERIOD OF CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTION TO KEEP DEBRIS OUT OF THE MANHOLE.

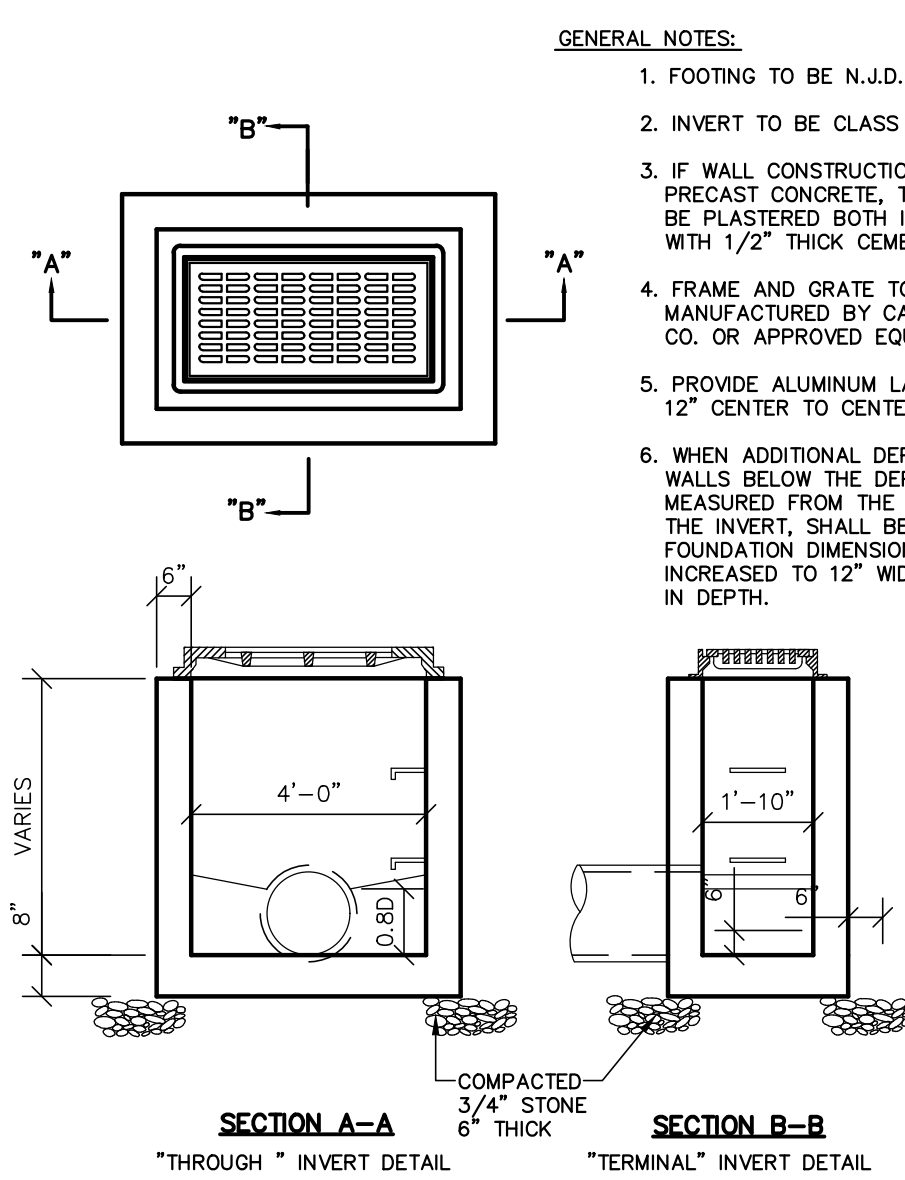


TYPICAL CHANNELING OF MANHOLE BOTTOM

NOT TO SCALE

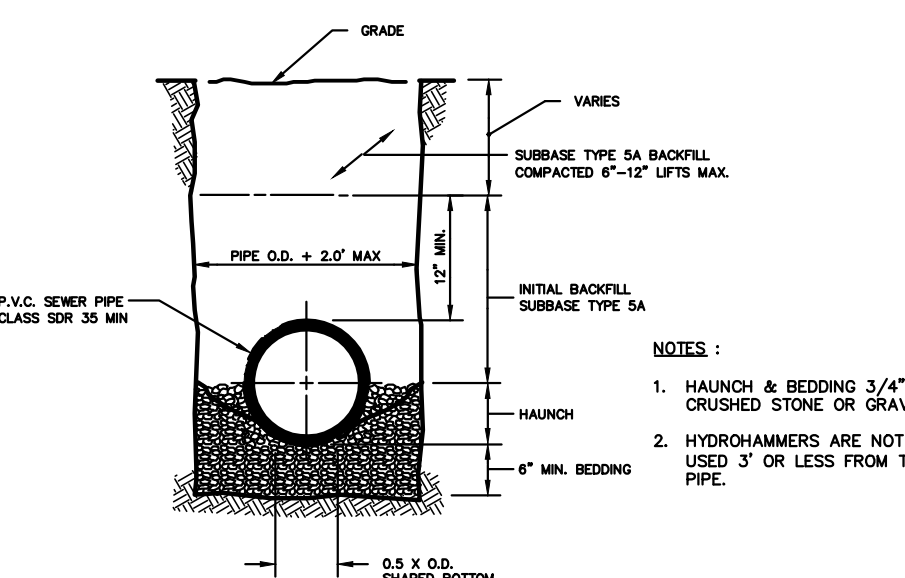
TRENCH EXCAVATION AND BACKFILL NOTES

1. THE MAXIMUM DRY DENSITIES SHALL BE DETERMINED IN ACCORDANCE WITH ASTM DESIGNATION D1557. THE MINIMUM PERCENTAGE OF COMPACTION TO BE ACHIEVED BY THE CONTRACTOR IN THE VARIOUS ZONES IS AS FOLLOWS:
- | PIPE MATERIAL | LOCATION | INITIAL COMPACTION |
|---|----------|--------------------|
| ALL | ALL | 95% |
| PIPE EMBEDED ZONE: | | 90% |
| THE MINIMUM COMPACTION IN EMBANKMENTS SHALL BE 90%. | | 95% |
2. THE PIPE EMBEDMENT ZONE WIDTH AND THE MAXIMUM TRENCH WIDTH SHALL NOT EXCEED THE PERMISSIBLE WIDTHS SHOWN. IF THE PERMISSIBLE WIDTH IS EXCEEDED, THE PIPE SHALL BE INSTALLED IN A HIGHER CLASS BEDDING THAN SHOWN ON THE DRAWINGS OR THE SPECIFIED PIPE SHALL BE REPLACED WITH PIPE OF GREATER CRUSHING STRENGTH OR BOTH, TO ACHIEVE SUITABLE CONDITIONS.
 3. SUITABLE MATERIAL FROM EXCAVATIONS SHALL BE FREE FROM OBJECTIONABLE QUANTITIES OF ORGANIC MATTER, CLAYS, TREES, STUMPS, FROZEN MATERIAL, RUBBLE, REFUSE, CINDERS, ROCK AND OTHER MATERIALS CONSIDERED DELETERIOUS BY THE AUTHORITY AND SHALL NOT HAVE FINES IN EXCESS OF 10 PERCENT PASSING THE NO. 200 SIEVE NOR STONE OR GRAVEL LARGER THAN 2 INCHES.
 4. BACKFILL TO BE MECHANICALLY COMPACTIONED IN TWELVE INCH LIFTS TO THE SATISFACTION OF THE ENGINEER.
 5. THE CONTRACTOR MUST COMPLY WITH ALL STATE AND FEDERAL CONFINED SPACE RULES, AND ALL APPLICABLE O.S.H.A. REQUIREMENTS.



TYPE "A" INLET

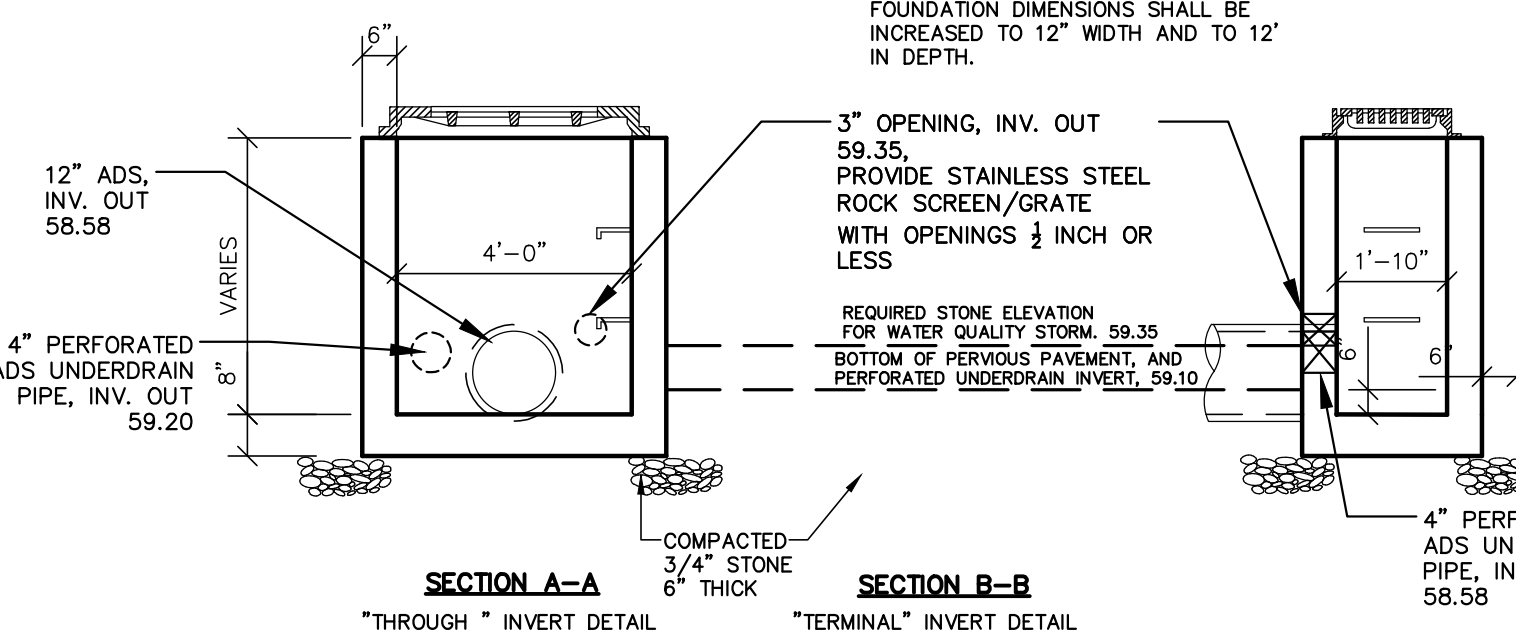
WITH BICYCLE GRATE



SANITARY SEWER STANDARD PIPE BEDDING FOR PVC PIPE DETAIL

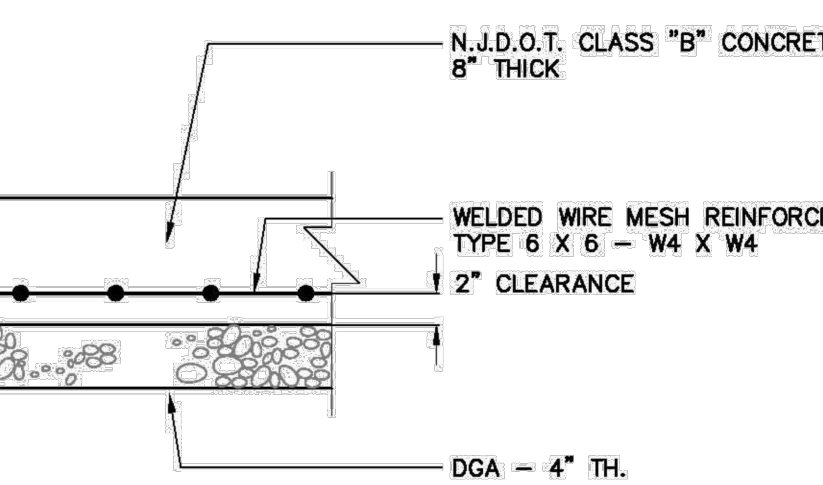
NOT TO SCALE

- GENERAL NOTES:
1. FOOTING TO BE N.J.D.O.T., CLASS "C".
 2. INVERT TO BE CLASS "C".
 3. IF WALL CONSTRUCTION IS OTHER THAN PRECAST CONCRETE, THE WALLS SHALL BE PLASTERED BOTH INSIDE AND OUTSIDE WITH 1/2" THICK CEMENT PLASTER.
 4. FRAME AND GRATE TO BE NO. 3405 AS MANUFACTURED BY CAMPBELL FOUNDRY CO. OR APPROVED EQUAL.
 5. PROVIDE ALUMINUM LADDER RUNGS @ 12" CENTER TO CENTER.
 6. WHEN ADDITIONAL DEPTH IS SCHEDULE WALLS BELOW THE DEPTH OF 8'-0" MEASURED FROM THE INLET GUTTER TO THE INVERT, SHALL BE 12" THICK. THE FOUNDATION DIMENSIONS SHALL BE INCREASED TO 12" WIDTH AND TO 12" IN DEPTH.



STORM INLET 1, TYPE "A"

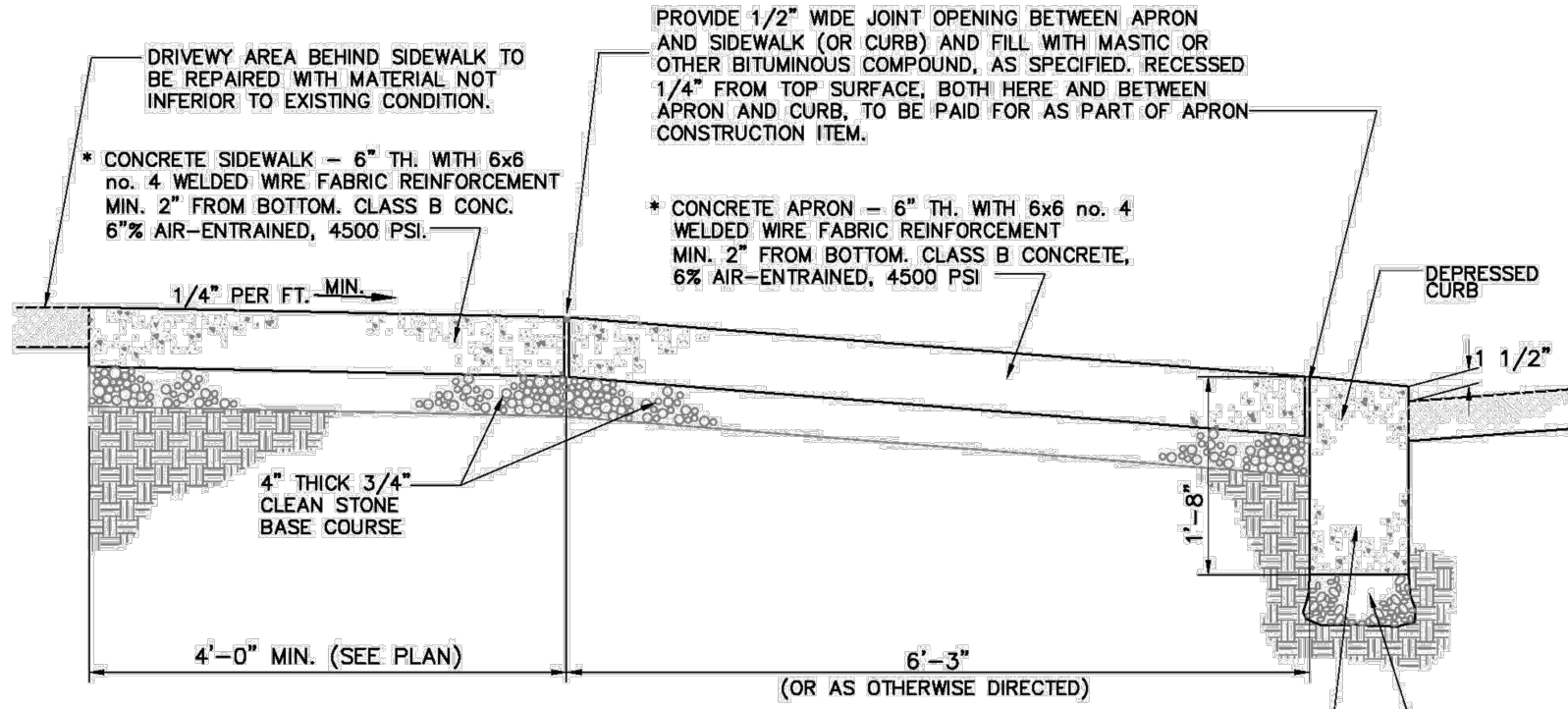
WITH BICYCLE GRATE



CONCRETE DRIVEWAY, REINFORCED

DRIVEWAYS

COUNTY SITE DESIGN DETAIL 1.08
NOT TO SCALE

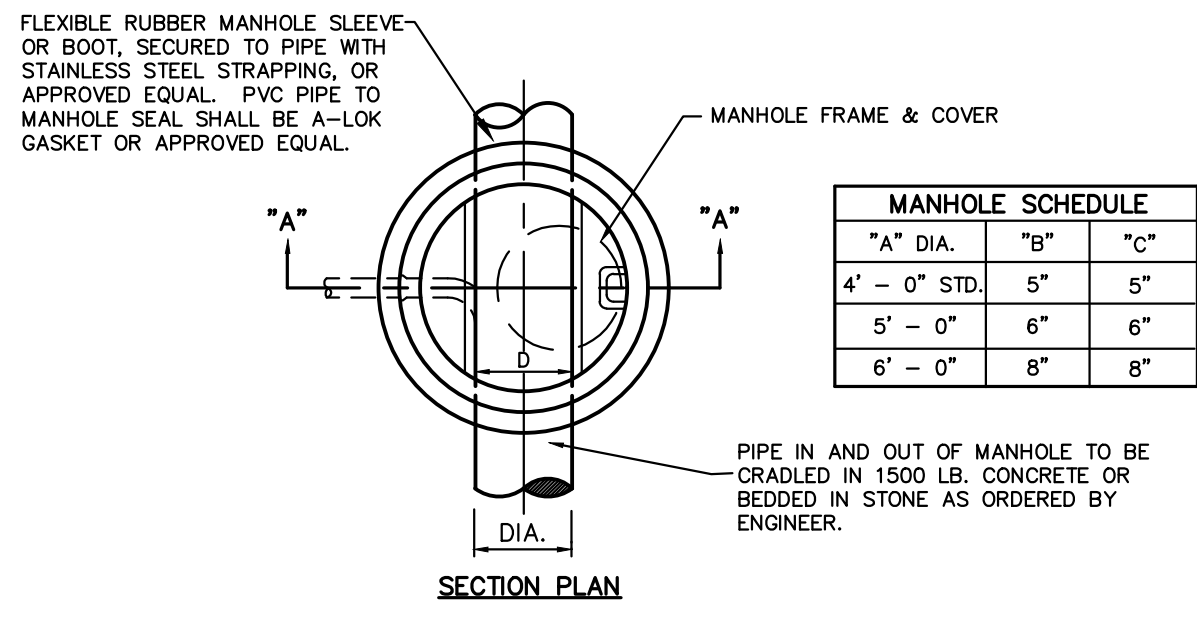


CONCRETE DRIVEWAY APRON TYPICAL SECTION

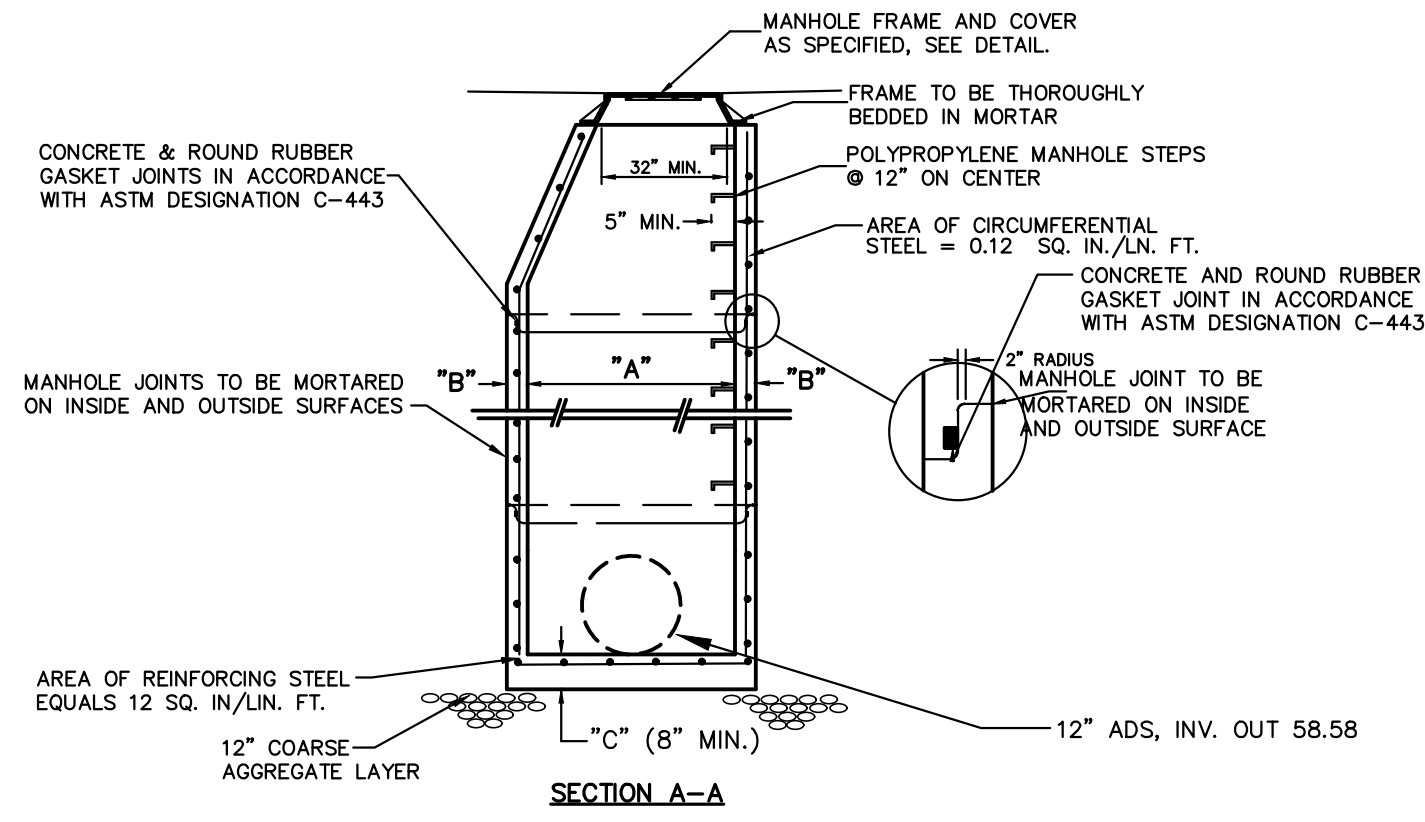
COUNTY SITE DESIGN DETAIL 1.09

NOT TO SCALE

- GENERAL NOTES:
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 2. INVERT TO BE CLASS "C".
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 5. PROVIDE ALUMINUM LADDER RUNGS @ 12" CENTER TO CENTER.
 6. WHEN ADDITIONAL DEPTH IS SCHEDULE WALLS BELOW THE DEPTH OF 8'-0" MEASURED FROM THE INLET GUTTER TO THE INVERT, SHALL BE 12" THICK. THE FOUNDATION DIMENSIONS SHALL BE INCREASED TO 12" WIDTH AND TO 12" IN DEPTH.



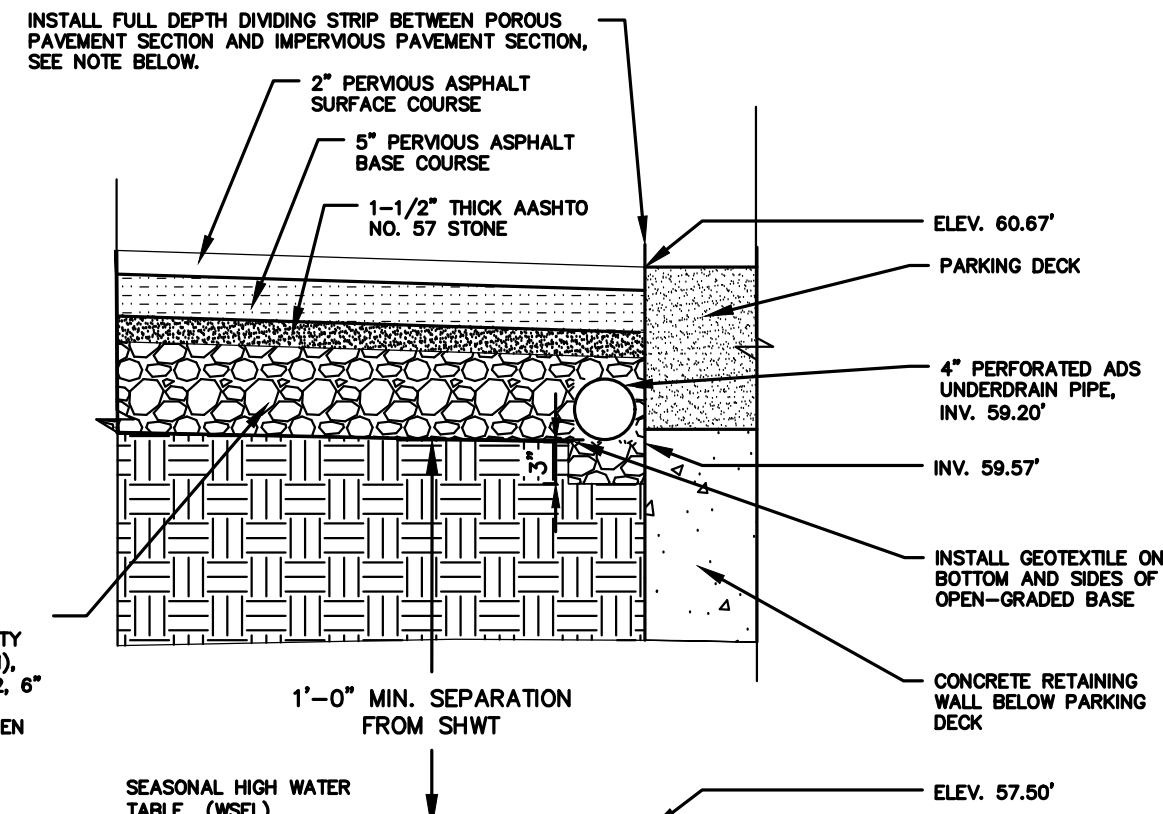
SECTION PLAN



CONSTRUCTION NOTES:

1. PRECAST MANHOLE SECTIONS TO BE IN ACCORDANCE WITH LATEST ASTM DESIGNATION C-478. MINIMUM COMPRESSIVE STRENGTH TO BE 4000 PSI.
2. FLEXIBLE RUBBER BOOT SHALL BE USED FOR CONNECTION OF PVC PIPE TO MANHOLE.
3. PRECAST CHANNELS SHALL NOT BE USED FOR BENDS GREATER THAN 45°. POURED CONCRETE LONG RADIUS CHANNELS SHALL BE CONSTRUCTED.
4. WHEN PRECAST CONCRETE MANHOLES ARE USED, BASE AND BARREL SECTION SHALL BE MONOLITHICALLY CAST.

PRECAST STORM MANHOLE



NOTES:

1. CONTRACTOR SHALL INSTALL A FULL DEPTH DIVIDING STRIP BETWEEN THE TWO TYPES OF PAVEMENT TO ENSURE THAT STRUCTURAL INTEGRITY IS MAINTAINED AND TO PREVENT INADVERTENT SATURATION OF THE ADJACENT IMPERVIOUS PAVEMENT SURFACE COURSE. DIVIDING STRIP SHALL BE AN IMPERMEABLE MEMBRANE EXTENDING FROM TOP OF BASE COURSE TO BOTTOM OF DGA.
2. PERVIOUS PAVEMENT SHALL BE LIMITED TO THOSE AREAS IDENTIFIED ON THE PLANS, SPECIFICALLY WITHIN THE PARKING STALL AREAS.

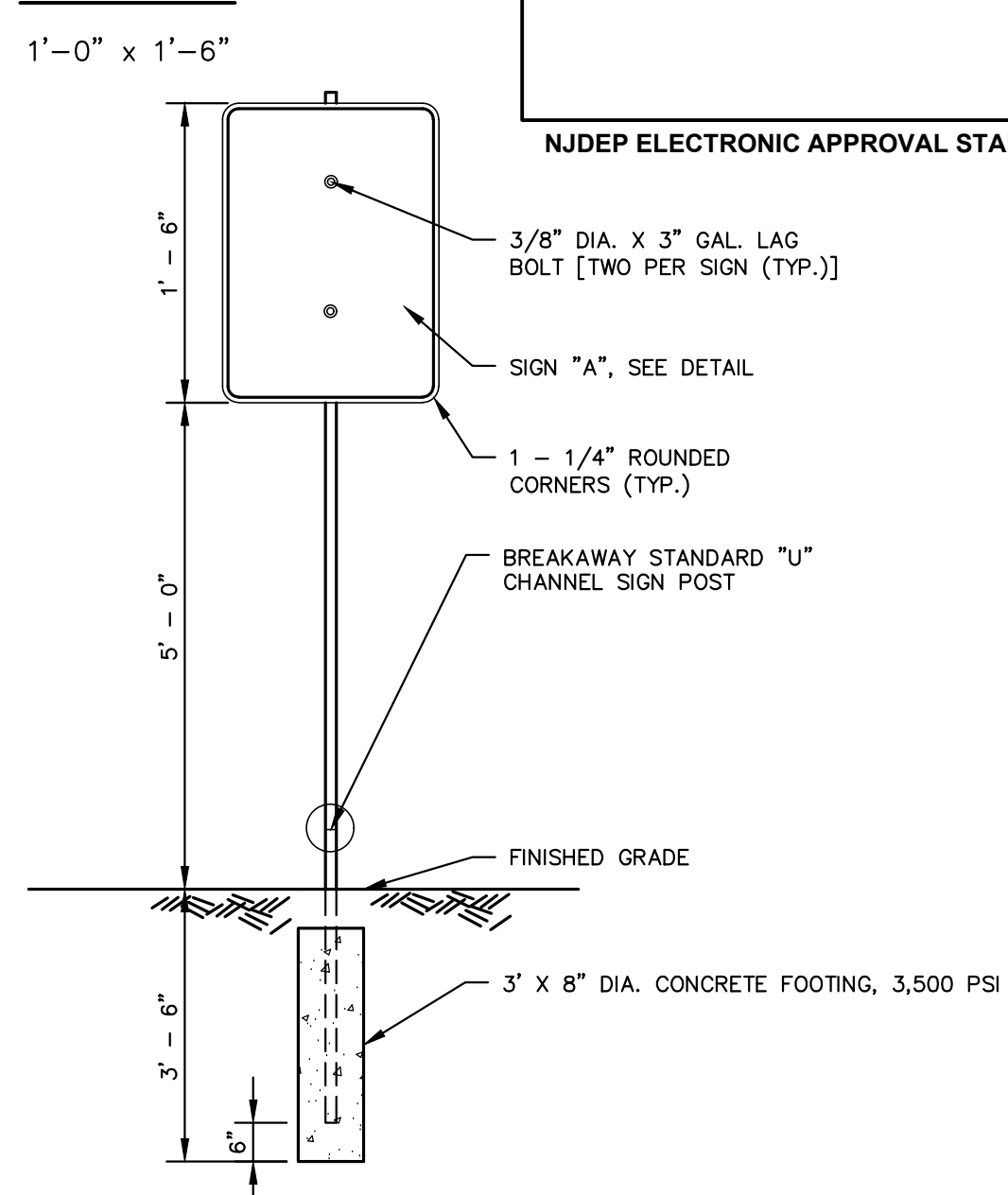
PERVIOUS PAVEMENT DETAIL

NOT TO SCALE

- HMA PERVIOUS PAVEMENT FRICTION COURSE NOTES:
1. ASPHALT SURFACE COURSE TO CONSIST OF MODIFIED OPEN GRADED 9.5MM FRICTION COURSE (MOGFC).
 2. ASPHALT BASE COURSE TO CONSIST OF MODIFIED OPEN GRADED 19MM FRICTION COURSE (MOGFC).
 3. POLYMER MODIFIED BINDER: PG64E-22
 4. MINIMUM ASPHALT CONTENT FOR 9.5MM NOMINAL AGGREGATE IS 5.75% BY WEIGHT
 5. MINIMUM ASPHALT CONTENT FOR 19MM NOMINAL AGGREGATE IS HIGHEST POSSIBLE WITHOUT EXCESSIVE DRAIN DOWN REQUIREMENTS
 6. AIR VOIDS: AASHTO T.269-11/ASTM D3203M-11 > 16%
 7. DRAIN DOWN: AASHTO T.305-09/ASTM 6390-11 < 0.3%
 8. POROSITY OF SURFACE COURSE: 15-25%
 9. POROSITY OF BASE COURSE: ≥ 25%
 10. IF WITHIN 12 HOURS BEFORE PAVING A 50% CHANCE OR GREATER OF PRECIPITATION IS FORECAST, POSTPONE PLACEMENT.
 11. DO NOT PAVE IF AMBIENT TEMPERATURE IS BELOW 50° F.
 12. CONTRACTOR TO PERFORM POST CONSTRUCTION PERVIOUS PAVEMENT TESTING IN ACCORDANCE ASTM C1701, OR ASTM 1781 AT THREE (3) LOCATIONS SPACED EVENLY. E MINIMUM TESTED INFILTRATION RATE OF THE SURFACE COURSE SHALL BE 6.4 INCHES PER HOUR

WARNING
AREA
SUBJECT
TO
FLOODING
SIGN "A"

1'-0" x 1'-6"

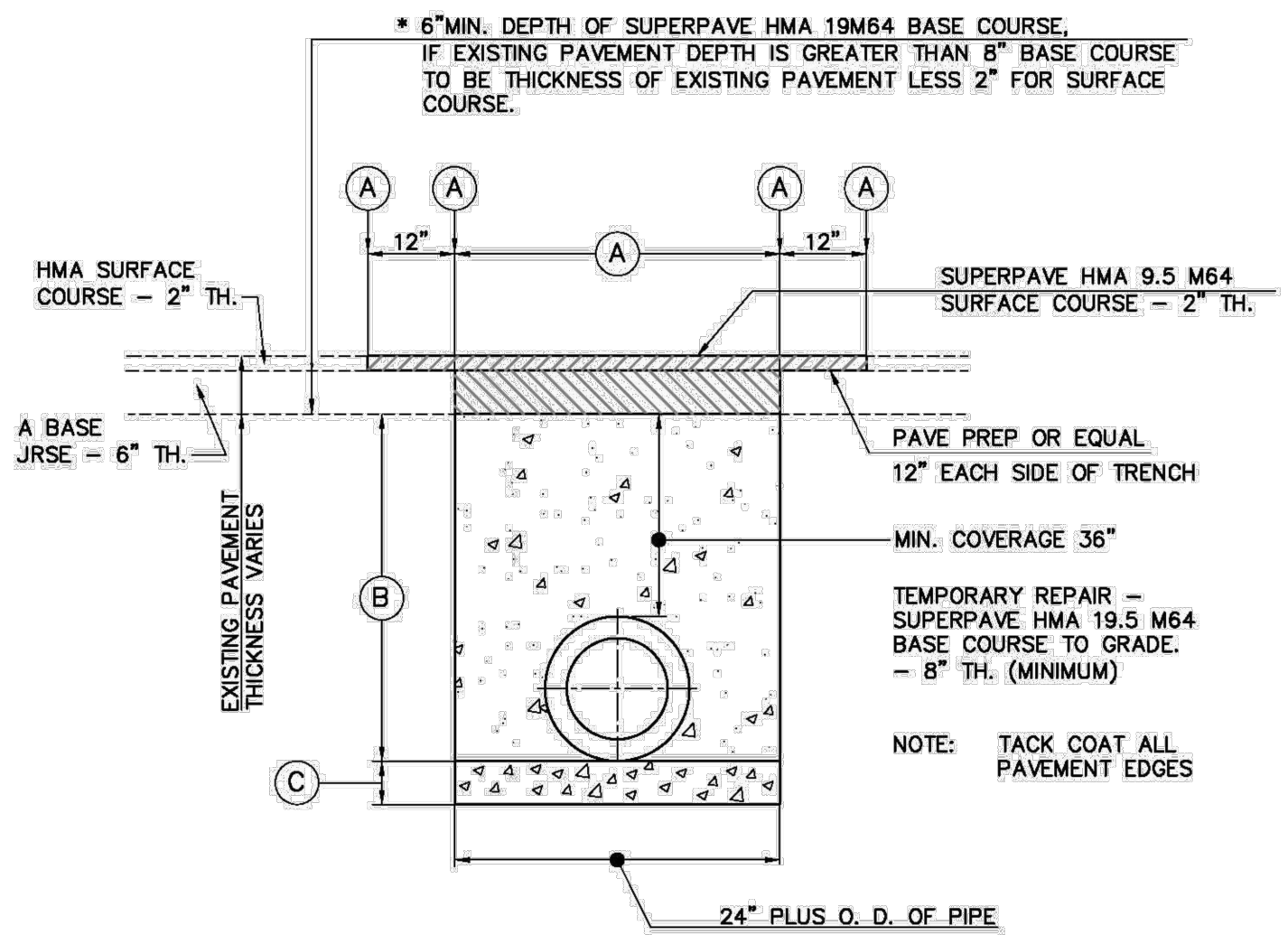


NOTES:

1. ALL SIGNS TO CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
2. OUTSIDE EDGE OF CLOSEST TO ROADWAY SHALL BE A MINIMUM DISTANCE OF 2'
3. TOP OF FOOTING TO BE 6" BELOW FINISHED GRADE
4. THE CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO PURCHASE OF ANY MATERIALS.

SIGN "A" POST DETAIL

NOT TO SCALE



- EXISTING HOT MIX ASPHALT OR CONCRETE PAVEMENT TO BE SAW CUT.
- DENSE GRADED AGGREGATE BASE COURSE
- 3/4" CLEAN STONE, 6" LAYER. USE ONLY IF PIPE SIZE IS 36" OR LARGER OR IF WET CONDITIONS ARE PRESENT

* IF EXISTING PAVEMENT IS CONCRETE, RESTORATION MATERIAL FOR BASE COURSE SHALL ALSO BE CONCRETE, OR AS DIRECTED BY THE COUNTY ENGINEER.

NOTE: IF EXCAVATION IS WITHIN 2' OF CURB, REMOVE PAVEMENT TO CURB AND REPLACE

HOT MIX ASPHALT PAVEMENT TRENCH RESTORATION

COUNTY SITE DESIGN DETAIL 1.35

NOT TO SCALE

9	11/09/2022	REVISED PER PLANNING BOARD REVIEW LETTERS	MS	BF
8	09/08/2022	REVISED PER TOWNSHIP DRC MEETING		BF
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No.	Date	Revision	Revised By	Checked By

SCALE IN FEET



New Jersey • New York • Pennsylvania • Georgia

BAHRAM FARZANEH, PE, PP

PROFESSIONAL ENGINEER, NJ LIC. NO. 24GE03454800

CONSTRUCTION DETAILS

FOR
PRELIMINARY AND FINAL SITE PLAN
FOR
201 WALNUT AVENUE
BLOCK 484 LOT 19.01

TOWNSHIP OF CRANFORD
UNION COUNTY NEW JERSEY

DATE: 1/29/2021	DESIGNED BY: KDW	SCALE: AS SHOWN	PROJECT NUMBER: 16377.001
DRAWN BY: KDW	CHECKED BY: BF	FIELD BOOK	SHEET: 11 of 12

- GENERAL CONDITIONS**
- REVIEW INSTALLATION PROCEDURES AND COORDINATE THE INSTALLATION WITH OTHER CONSTRUCTION ACTIVITIES, SUCH AS GRADING, EXCAVATION, UTILITIES, CONSTRUCTION ACCESS, EROSION CONTROL, ETC.
 - ENGINEERED DRAWINGS SUPERSEDE ALL PROVIDED DOCUMENTATION, AS THE INFORMATION FURNISHED IN THIS DOCUMENT IS BASED ON A TYPICAL INSTALLATION.
 - WHEN INSTALLED BASED ON BRENTWOOD'S SITE PREPARATION AND INSTALLATION INSTRUCTIONS OR SIMILAR, A STORMTANK→SYSTEM CAN SUPPORT AN HS-25 LOAD.
 - COORDINATE THE INSTALLATION WITH MANUFACTURER'S REPRESENTATIVE/DISTRIBUTOR TO BE ON-SITE TO REVIEW START UP PROCEDURES AND INSTALLATION INSTRUCTIONS.
 - COMPONENTS SHALL BE UNLOADED, HANDLED AND STORED IN AN AREA PROTECTED FROM TRAFFIC AND IN A MANNER TO PREVENT DAMAGE.
 - ASSEMBLED MODULES MAY BE WALKED ON, BUT VEHICULAR TRAFFIC IS PROHIBITED UNTIL BACKFILLED PER MANUFACTURER'S REQUIREMENTS. PROTECT THE INSTALLATION AGAINST DAMAGE WITH HIGHLY VISIBLE CONSTRUCTION TAPE, FENCING, OR OTHER MEANS UNTIL CONSTRUCTION IS COMPLETE.
 - ENSURE ALL CONSTRUCTION OCCURS IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, REGULATIONS AND SAFETY REQUIREMENTS.
 - EXTRA CARE AND CAUTION SHOULD BE TAKEN WHEN TEMPERATURES ARE AT OR BELOW 40° F (4.4° C).

1.0. STORMTANK→ASSEMBLY
STORMTANK→MODULES:
STORMTANK→MODULES ARE DELIVERED TO THE SITE AS PALLETIZED COMPONENTS REQUIRING SIMPLE ASSEMBLY. NO SPECIAL EQUIPMENT, TOOLS OR BONDING AGENTS ARE REQUIRED; ONLY A RUBBER Mallet. A SINGLE WORKER CAN TYPICALLY ASSEMBLE A MODULE IN TWO MINUTES.

ASSEMBLY INSTRUCTIONS:

- PLACE A PLATEN ON A FIRM, LEVEL SURFACE AND INSERT THE EIGHT (8) COLUMNS INTO THE PLATEN RECEIVER CUPS. FIRMLY TAP EACH COLUMN WITH A RUBBER Mallet TO ENSURE THE COLUMN IS SEATED.
- PLACE A SECOND PLATEN ON A FIRM, LEVEL SURFACE. FLIP THE PREVIOUSLY ASSEMBLED COMPONENTS UPSIDE DOWN ONTO THE SECOND PLATEN, ALIGNING THE COLUMNS INTO THE PLATEN RECEIVER CUPS.
- ONCE ALIGNED, SEAT THE TOP ASSEMBLY BY ALTERNATING TAPS, WITH A RUBBER Mallet AT EACH STRUCTURAL COLUMN UNTIL ALL COLUMNS ARE FIRMLY SEATED.

SIDE PANELS

- IF SIDE PANELS ARE REQUIRED, FIRMLY TAP THE TOP PLATEN UPWARD TO RAISE THE TOP PLATEN. INSERT THE SIDE PANEL INTO THE BOTTOM PLATEN.
- ALIGN THE TOP OF THE SIDE PANEL WITH THE TOP PLATEN AND FIRMLY SEAT THE TOP PLATEN UTILIZING A RUBBER Mallet.

GENERAL NOTES:

- REMOVE PACKAGING MATERIAL AND CHECK FOR ANY DAMAGE. REPORT ANY DAMAGED COMPONENTS TO A STORMTANK→DISTRIBUTOR OR BRENTWOOD PERSONNEL.
- STORMTANK→COMPONENTS ARE BACKED BY A ONE YEAR WARRANTY, WHEN INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

2.0 BASIN EXCAVATION
1. STAKE OUT AND EXCAVATE TO ELEVATIONS PER APPROVED PLANS. EXCAVATION REQUIREMENTS:

- SUB-GRADE EXCAVATION MUST BE A MINIMUM OF 6" (152 MM) BELOW DESIGNED STORMTANK→MODULE INVERT.
- THE EXCAVATION SHOULD EXTEND A MINIMUM OF 12" (305 MM) BEYOND THE STORMTANK→DIMENSIONS IN EACH LENGTH AND WIDTH (AN ADDITIONAL 24" [610 MM] IN TOTAL LENGTH AND TOTAL WIDTH) TO ALLOW FOR ADEQUATE PLACEMENT OF SIDE BACKFILL MATERIAL.
- REMOVE OBJECTIONABLE MATERIAL ENCOUNTERED WITHIN THE EXCAVATION, INCLUDING PROTRUDING MATERIAL FROM THE WALLS.
- FURNISH, INSTALL, MONITOR AND MAINTAIN EXCAVATION SUPPORT (E.G., SHORING, BRACING, TRENCH BOXES, ETC.) AS REQUIRED BY FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, REGULATIONS AND SAFETY REQUIREMENTS.

3.0 SUB-GRADE REQUIREMENTS

- SUB-GRADE SHALL BE UNFROZEN, LEVEL (PLUS OR MINUS 1%), AND FREE OF LUMPS OR DEBRIS WITH NO STANDING WATER, MUD OR MUCK. DO NOT USE MATERIALS NOR MIX WITH MATERIALS THAT ARE FROZEN AND/OR COATED WITH ICE OR FROST.

2. UNSTABLE, UNSUITABLE AND/OR COMPROMISED AREAS SHOULD BE BROUGHT TO THE ENGINEER'S ATTENTION AND MITIGATING EFFORTS DETERMINED PRIOR TO COMPACTING THE SUB-GRADE.

3. SUB-GRADE MUST BE COMPACTED TO 95% STANDARD PROCTOR DENSITY OR AS APPROVED BY THE ENGINEER OF RECORD. IF CODE REQUIREMENTS RESTRICT SUBGRADE COMPACTION, IT IS THE REQUIREMENT OF THE GEOTECHNICAL ENGINEER TO VERIFY THAT THE BEARING CAPACITY AND SETTLEMENT CRITERIA FOR SUPPORT OF THE SYSTEM ARE MET.

*** THE ENGINEER OF RECORD SHALL REFERENCE BRENTWOOD DOCUMENT APPENDIX A FOR MINIMUM SOIL BEARING CAPACITY REQUIRED BASED ON LOAD RATING AND TOP COVER DEPTH. MINIMUM SOIL BEARING CAPACITY IS REQUIRED SO THAT SETTLEMENTS ARE LESS THAN 1" THROUGH THE ENTIRE SUB-GRADE AND DO NOT EXCEED LONG-TERM 1/2"-DIFFERENTIAL SETTLEMENT BETWEEN ANY TWO ADJACENT UNITS WITHIN THE SYSTEM. SUB-GRADE MUST BE DESIGNED TO ENSURE SOIL BEARING CAPACITY IS MAINTAINED THROUGHOUT ALL SOIL SATURATION LEVELS.**

4.0 LEVELING BED INSTALLATION

- INSTALL GEOTEXTILE FABRIC AND/OR LINER MATERIAL, AS SPECIFIED.
- GEOTEXTILE FABRIC SHALL BE PLACED PER MANUFACTURER'S RECOMMENDATIONS.
- ADDITIONAL MATERIAL TO BE UTILIZED FOR WRAPPING ABOVE THE SYSTEM MUST BE PROTECTED FROM DAMAGE UNTIL USE.

2. AFTER THE GEOTEXTILE IS SECURED, PLACE A MINIMUM 6" (152 MM) LEVELING BED.

- MATERIAL SHOULD BE A 3/4" (19 MM) ANGULAR STONE MEETING APPENDIX B - ACCEPTABLE FILL MATERIAL.
- MATERIAL SHOULD BE RAKED FREE OF VOIDS, LUMPS, DEBRIS, SHARP OBJECTS AND PLATE VIBRATED TO A LEVEL WITH A MAXIMUM 1% SLOPE.

3. CORRECT ANY UNSATISFACTORY CONDITIONS.

5.0 STORMTANK→MODULE PLACEMENT

- INSTALL GEOTEXTILE FABRIC AND/OR LINER MATERIAL, AS SPECIFIED.
- GEOTEXTILE FABRIC SHALL BE PLACED PER MANUFACTURER'S RECOMMENDATIONS.
- ADDITIONAL MATERIAL TO BE UTILIZED FOR WRAPPING ABOVE THE SYSTEM MUST BE PROTECTED FROM DAMAGE UNTIL USE.

2. MARK THE FOOTPRINT OF THE MODULES FOR PLACEMENT.

- ENSURE MODULE PERIMETER OUTLINE IS SQUARE OR SIMILAR PRIOR TO MODULE PLACEMENT.
- CARE SHOULD BE TAKEN TO NOTE ANY CONNECTIONS, PORTS OR OTHER IRREGULAR UNITS TO BE PLACED.

3. INSTALL THE INDIVIDUAL MODULES BY HAND, AS DETAILED BELOW.

- THE MODULES SHOULD BE SHOWN IN THE STORMTANK→SUBMITTAL DRAWINGS WITH THE SHORT SIDE OF PERIMETER MODULES FACING OUTWARD, EXCEPT AS OTHERWISE REQUIRED.
- MAKE SURE THE TOP/BOTTOM PLATENS ARE IN ALIGNMENT IN ALL DIRECTIONS TO WITHIN A MAXIMUM 1/4" (6.4 MM).
- FOR DOUBLE STACK CONFIGURATIONS:

- INSTALL THE BOTTOM MODULE FIRST. DO NOT INTERMIX VARIOUS MODULE HEIGHTS ACROSS LAYERS. BACKFILLING PRIOR TO PROCEEDING TO SECOND LAYER IS OPTIONAL.
 - INSERT STACKING PINS (2 PER MODULE) INTO THE TOP PLATEN OF THE BOTTOM MODULE.
 - PLACE THE UPPER MODULE DIRECTLY ON TOP OF THE BOTTOM MODULE IN THE SAME DIRECTION, MAKING SURE TO ENGAGE THE PINS.
- 4. INSTALL THE MODULES TO COMPLETION, TAKING CARE TO AVOID DAMAGE TO THE GEOTEXTILE AND/OR LINER MATERIAL.**
- 5. LOCATE ANY PORTS OR OTHER PENETRATION OF THE STORMTANK→**
- INSTALL PORTS/PENETRATIONS IN ACCORDANCE WITH THE APPROVED SUBMITTALS, CONTRACT DOCUMENTS AND MANUFACTURER'S RECOMMENDATIONS.

6. UPON COMPLETION OF MODULE INSTALLATION, WRAP THE MODULES IN GEOTEXTILE FABRIC AND/OR LINER.

- GEOTEXTILE FABRIC SHALL BE WRAPPED AND SECURED PER MANUFACTURER'S RECOMMENDATIONS.
- SEAL ANY PORTS/PENETRATIONS PER MANUFACTURER'S REQUIREMENTS

NOTES:

- IF DAMAGE OCCURS TO THE GEOTEXTILE FABRIC OR IMPERMEABLE LINER, REPAIR THE MATERIAL IN ACCORDANCE WITH THE GEOTEXTILE/LINER MANUFACTURER'S RECOMMENDATIONS.

6.0 SIDE BACKFILL

- INSPECT ALL GEOTEXTILE, ENSURING THAT NO VOIDS OR DAMAGE EXISTS; WHICH WILL ALLOW SEDIMENT INTO THE STORMTANK→SYSTEM.

2. ADJUST THE STONE/SOIL INTERFACE GEOTEXTILE ALONG THE SIDE OF THE NATIVE SOIL TO ENSURE THE GEOTEXTILE IS TAUGHT TO THE NATIVE SOIL.

3. ONCE THE GEOTEXTILE IS SECURED, BEGIN TO PLACE THE SIDE BACKFILL.

- MATERIAL SHOULD BE A 3/4" (19 MM) ANGULAR STONE MEETING APPENDIX B - ACCEPTABLE FILL MATERIAL.
- BACKFILL SIDES EVENLY AROUND THE PERIMETER WITHOUT EXCEEDING SINGLE 12" (305 MM) LIFTS.
- PLACE MATERIAL UTILIZING AN EXCAVATOR, DOZER OR CONVEYOR BOOM.
- UTILIZE A PLATE VIBRATOR TO SETTLE THE STONE AND PROVIDE A UNIFORM DISTRIBUTION.

NOTES:

- DO NOT APPLY VEHICULAR LOAD TO THE MODULES DURING PLACEMENT OF SIDE BACKFILL. ALL MATERIAL PLACEMENT SHOULD OCCUR WITH EQUIPMENT LOCATED ON THE NATIVE SOIL SURROUNDING THE SYSTEM.
- IF DAMAGE OCCURS TO THE GEOTEXTILE FABRIC OR IMPERMEABLE LINER, REPAIR THE MATERIAL IN ACCORDANCE WITH THE GEOTEXTILE/LINER MANUFACTURER'S RECOMMENDATIONS.

7.0 TOP BACKFILL (STONE)

- BEGIN TO PLACE THE TOP BACKFILL.

 - MATERIAL SHOULD BE A 3/4" (19 MM) ANGULAR STONE MEETING APPENDIX B - ACCEPTABLE FILL MATERIAL.
 - PLACE MATERIAL UTILIZING AN EXCAVATOR, DOZER OR CONVEYOR BOOM (APPENDIX C - MATERIAL PLACEMENT) AND USE A WALK-BEHIND PLATE VIBRATOR TO SETTLE THE STONE AND PROVIDE AN EVEN DISTRIBUTION.

- DO NOT DRIVE ON THE MODULES WITHOUT A MINIMUM 12" (305 MM) COVER.

2. UPON COMPLETION OF TOP BACKFILLING, WRAP THE SYSTEM IN GEOTEXTILE FABRIC AND/OR LINER PER MANUFACTURER'S RECOMMENDATIONS.

3. INSTALL METALLIC TAPE AROUND THE PERIMETER OF THE SYSTEM TO MARK THE AREA FOR FUTURE UTILITY DETECTION.

NOTES:

- IF DAMAGE OCCURS TO THE GEOTEXTILE FABRIC OR IMPERMEABLE LINER, REPAIR THE MATERIAL IN ACCORDANCE WITH THE GEOTEXTILE/LINER MANUFACTURER'S RECOMMENDATIONS.

8.0 SUITABLE COMPACTABLE FILL
FOLLOWING TOP BACKFILL PLACEMENT AND GEOTEXTILE FABRIC WRAPPING; COMPLETE THE INSTALLATION AS NOTED BELOW.

VEGETATED AREA

- PLACE FILL ONTO THE GEOTEXTILE.

 - MAXIMUM 12" (305 MM) LIFTS, COMPACTED WITH A VIBRATORY PLATE OR WALK BEHIND ROLLER TO A MINIMUM OF 90% STANDARD PROCTOR DENSITY.
 - THE MINIMUM TOP COVER TO FINISHED GRADE SHOULD NOT BE LESS THAN 24" (610 MM) AND THE MAXIMUM DEPTH FROM FINAL GRADE TO THE BOTTOM OF THE LOWEST MODULE SHOULD NOT EXCEED 11' (3.35 M).

2. FINISH TO THE SURFACE AND COMPLETE WITH VEGETATIVE COVER.

IMPERVIOUS AREA

- PLACE FILL ONTO THE GEOTEXTILE.

 - MAXIMUM 12" (305 MM) LIFTS COMPACTED WITH A VIBRATORY PLATE OR WALK BEHIND ROLLER TO A MINIMUM 90% STANDARD PROCTOR DENSITY OR TO MEET THE ENGINEER OF RECORD'S SPECIFICATION.
 - SUB-BASE MATERIALS SHOULD BE REFERENCED BY THE APPROVED ENGINEERING DRAWINGS.
 - THE MINIMUM TOP COVER TO FINISHED GRADE SHOULD NOT BE LESS THAN 24" (610 MM) AND THE MAXIMUM DEPTH FROM FINAL GRADE TO THE BOTTOM OF THE LOWEST MODULE SHOULD NOT EXCEED 11' (3.35 M).

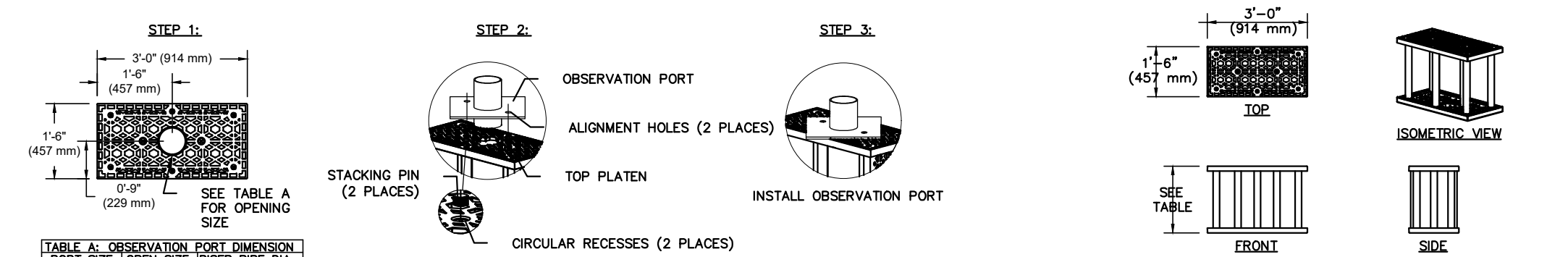
2. FINISH TO THE SURFACE AND COMPLETE WITH ASPHALT, CONCRETE, ETC.

NOTES:

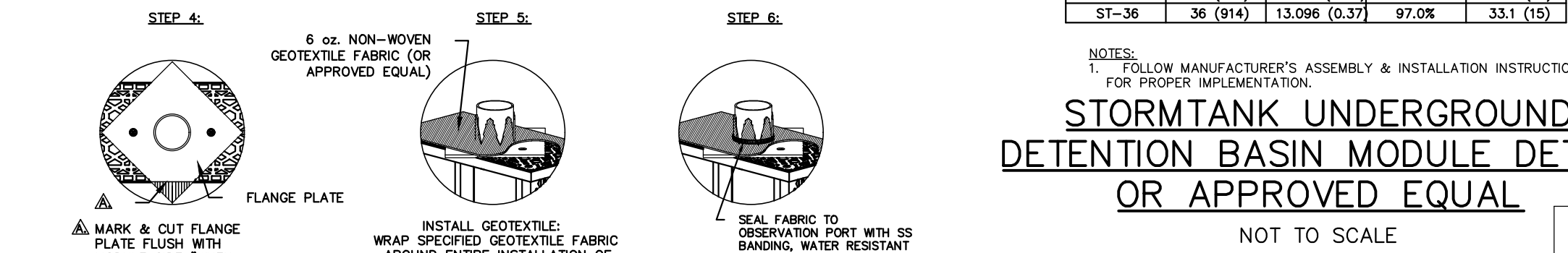
- A VIBRATORY ROLLER MAY ONLY BE UTILIZED AFTER A MINIMUM 24" (610 MM) OF COMPACTED MATERIAL HAS BEEN INSTALLED OR FOR THE INSTALLATION OF THE ASPHALT WEARING COURSE.
- IF DAMAGE OCCURS TO THE GEOTEXTILE FABRIC, REPAIR THE MATERIAL IN ACCORDANCE WITH THE GEOTEXTILE MANUFACTURER'S RECOMMENDATIONS.

GENERAL NOTES:

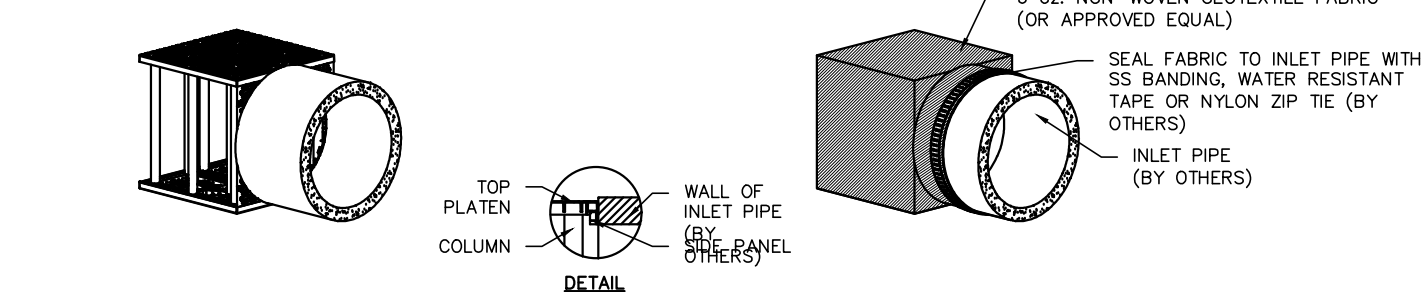
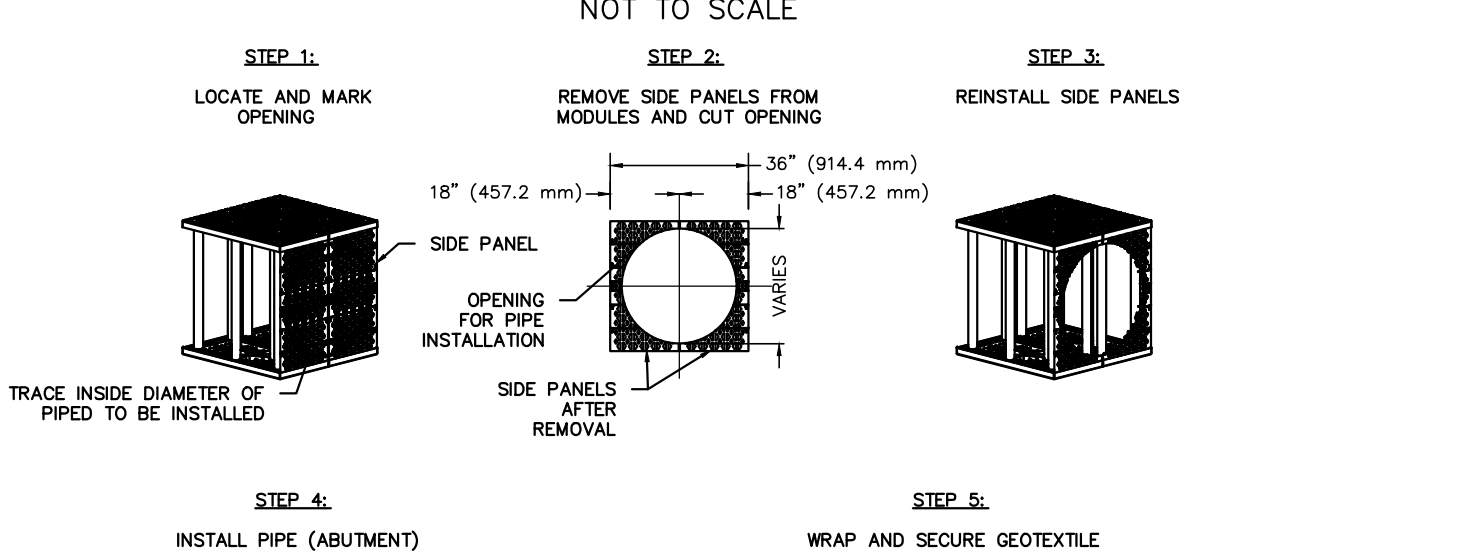
- FOOTING TO BE N.J.D.O.T., CLASS "C"
- INVERT TO BE CLASS "C"
- IF WALL CONSTRUCTION IS OTHER THAN PRECAST CONCRETE, THE WALLS SHALL BE PLASTERED BOTH INSIDE AND OUTSIDE WITH 1/2" THICK CEMENT PLASTER
- PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO ORDERING.
- PROVIDE ALUMINUM LADDER RUNGS @ 12" CENTER TO CENTER
- WHEN ADDITIONAL DEPTH IS SCHEDULE WALLS BELOW THE DEPTH OF 8'-0" MEASURED FROM THE INLET GUTTER TO THE INVERT, SHALL BE 12" THICK. THE FOUNDATION DIMENSIONS SHALL BE INCREASED TO 12" WIDTH AND 10" IN DEPTH.
- FRAME TO BE THOROUGHLY BEDDED IN MORTAR IN UNPAVED AREAS.
- ADJUST TO GRADE WITH COURSES OF BRICK (3 MAX) OR PRECAST CONCRETE GRADE RING.
- CONTRACTOR TO SUBMIT SHOP DRAWING TO DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ORDERING.
- STRUCTURE TOP TO BE REINFORCED CONCRETE DESIGNED FOR HS20 LOADING.



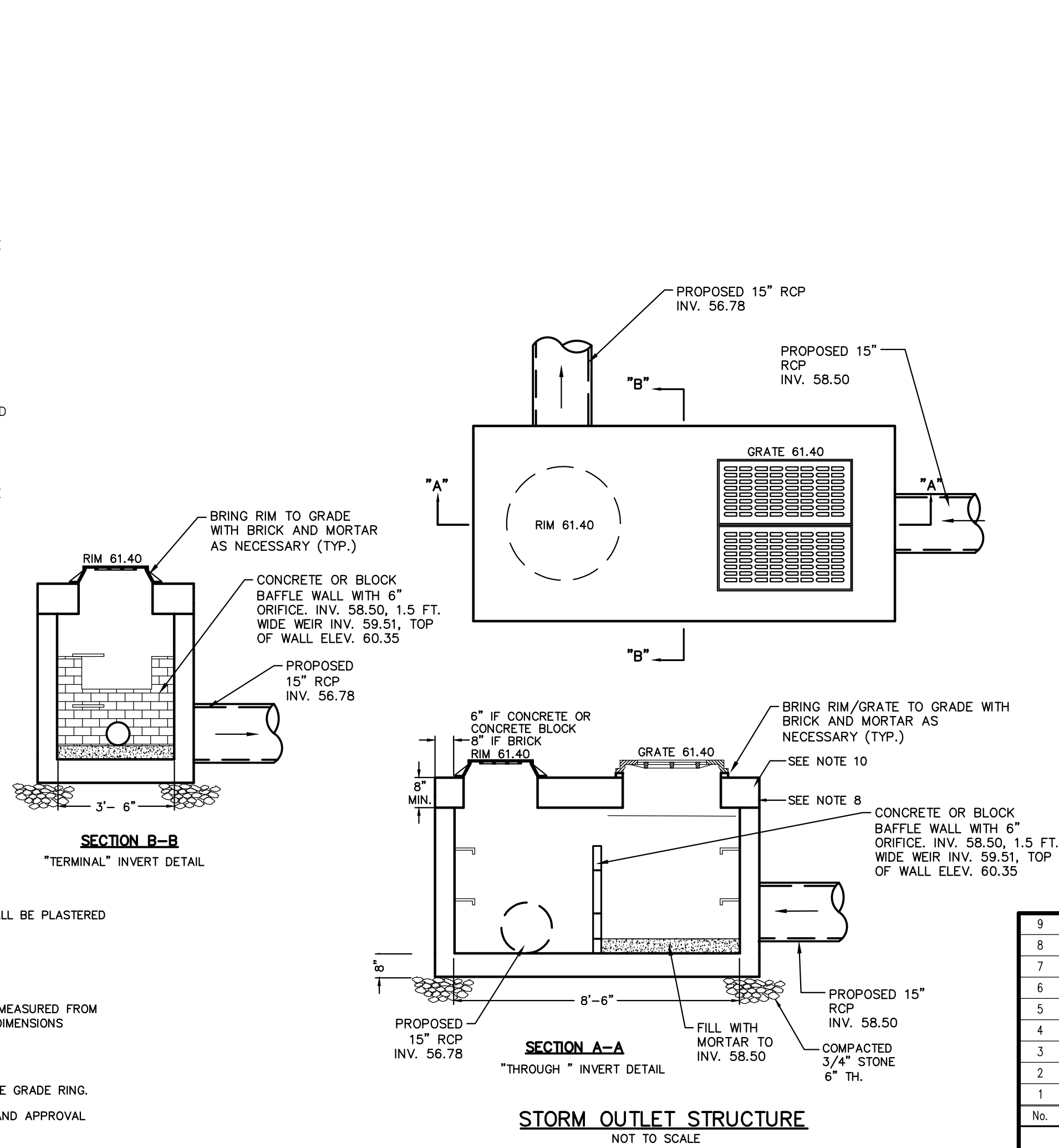
LAYOUT & CUT OPENING INTO THE CENTER OF THE TOP PLATEN FOR BRENTWOOD OBSERVATION PORT.



UNDERGROUND DETENTION BASIN OBSERVATION PORT INSTALLATION DETAIL

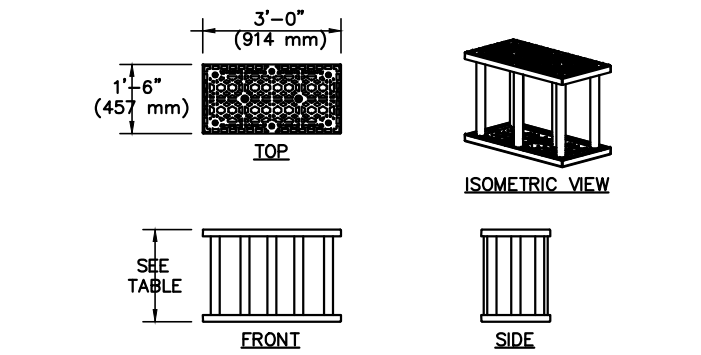


LARGE DIAMETER CONCRETE PIPE CONNECTION DETAIL (PIPE O.D. LARGER THAN MODULE)



STORM OUTLET STRUCTURE

NOT TO SCALE

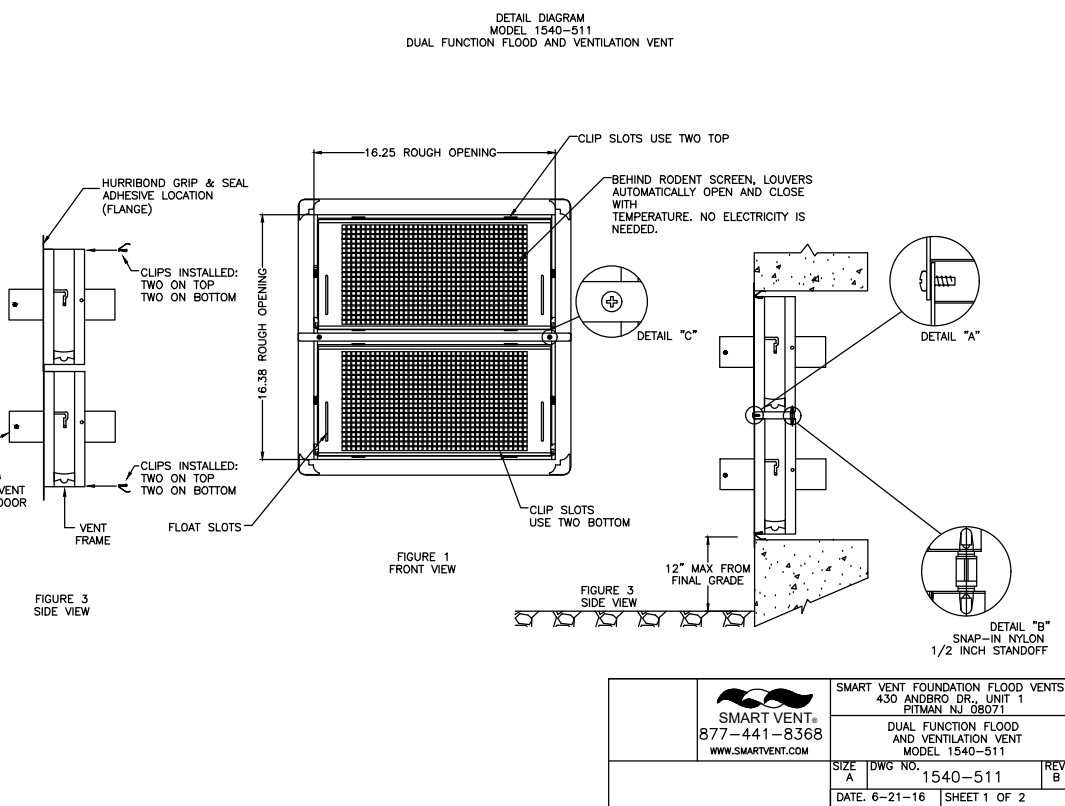
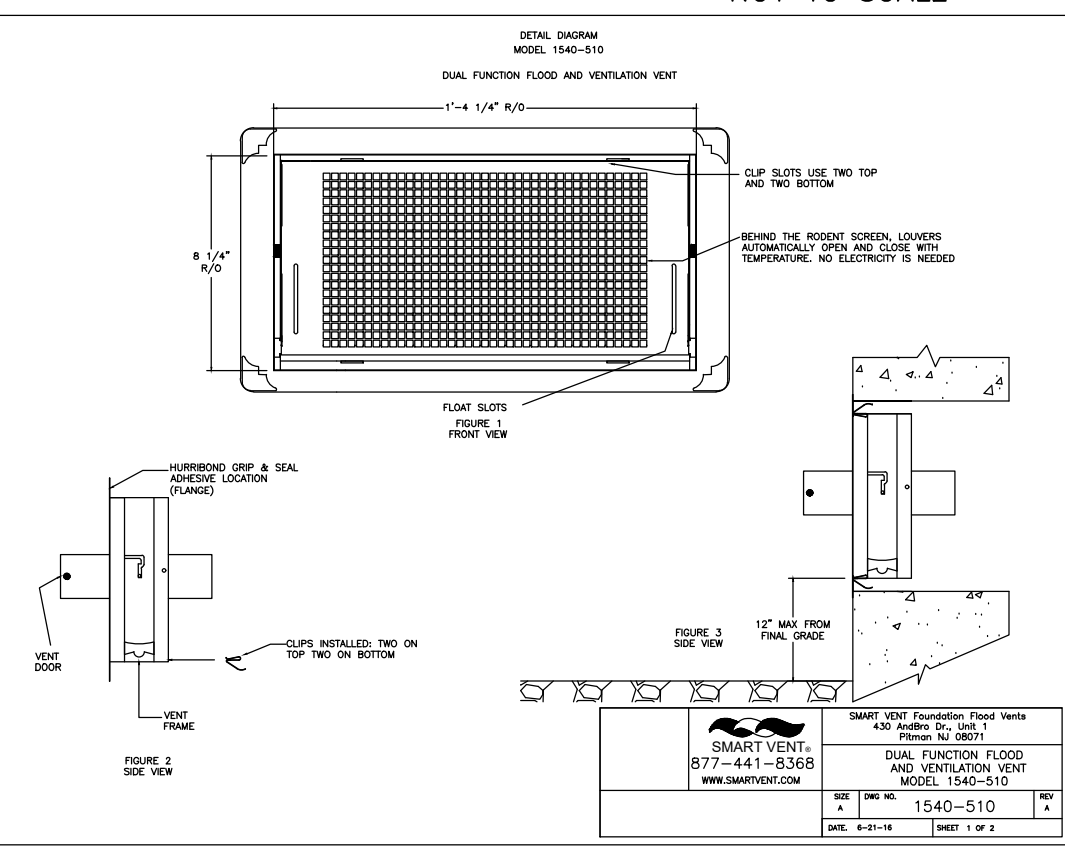


DESCRIPTION	HEIGHT in. (mm)	CAPACITY cf (cu. m)	NOMINAL VOID RATIO	WEIGHT lbs. (kg)
ST-24	24 (610)	8.656 (0.23)	96.0%	26.3 (12)
ST-36	36 (914)	13.096 (0.37)	97.0%	33.1 (15)

NOTES:
1. FOLLOW MANUFACTURER'S ASSEMBLY & INSTALLATION INSTRUCTIONS FOR PROPER IMPLEMENTATION.

STORMTANK UNDERGROUND DETENTION BASIN MODULE DETAIL OR APPROVED EQUAL

NOT TO SCALE



Series TF-2

- Will withstand construction
- Will not rust or corrode
- Custom-built to customer specifications
- Low cranking pressure, low headloss
- Eliminates backflow

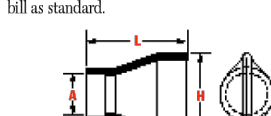
Materials of Construction
Resin: Resin® Resin® Resin® Resin®
Mounting Bands
304 or 316 Stainless Steel

The Tideflex® Check Valve is a revolutionary design for backflow prevention. It offers low cranking pressure to eliminate standing water and very low headloss that is not affected by rust, corrosion or lack of lubrication. Tideflex® Check Valves are cost-effective because they require no maintenance or repairs and have a long operational life span. Tideflex® operates using live pressure and backpressure to open and close so no outside energy source is required.

Tideflex® valves are excellent replacements for ineffective metal flapper valves because they will not warp or freeze and are virtually maintenance-free.

The inside diameter of the TF-2's cuff is constructed to exactly match the outside diameter of the pipe.

The valve is slid onto the pipe and held in place with steel or stainless steel band clamps, eliminating flange costs. Tideflex® TF-2 valves are constructed with a curved ball as standard.

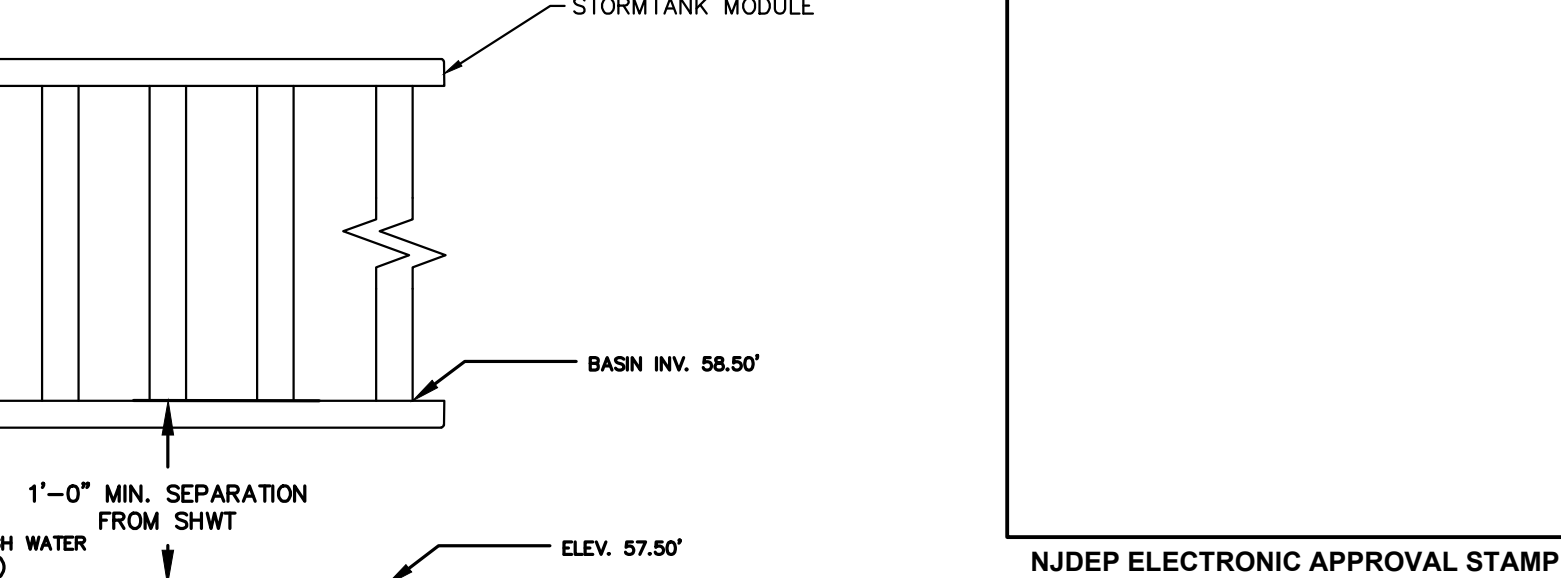


TIDEFLEX CHECK VALVE

NOT TO SCALE

No.	Date	Revision	Revised By	Checked By
9	11/09/2022	REVISED PER PLANNING BOARD REVIEW LETTERS	MS	BF
8	09/08/2022	REVISED PER TOWNSHIP DRC MEETING	MS	BF
7	08/10/2022	REVISED PER TOWNSHIP COMPLETENESS REVIEW	MS	BF
6	07/05/2022	REVISED SANITARY SEWER PROFILE	SP	BF
5	04/25/2022	REVISED PER UNION COUNTY COMMENTS DATED JAN. 6, 2022	SP	MS
4	12/08/2021	REVISED PER UNION COUNTY COMMENTS	SP	MS
3	11/01/2021	REVISED BUILDING FOOTPRINT	SP	MS
2	4/30/2021	REVISED PER NJDEP COMMENTS	MS	BF
1	4/28/2021	REVISED PER NJDEP COMMENTS	SP	MS

SCALE IN FEET



UNDERGROUND DETENTION BASIN MODULE DETAIL NOT TO SCALE

