

SITE CONSTRUCTION PLANS FOR:

PROPOSED OFFICE AND WAREHOUSE BUILDING

C & S CONCRETE CONSTRUCTION, INC.

7329 McCONNELL AVENUE, LOWELL, INDIANA 46356

UTILITY CONTACTS

Sanitary Sewer Town Of Lowell Wastewater Dept. 7500 Belshaw Road Lowell, Indiana 46356 219-696-0343	Electric NIPSCO 801 E 86th Avenue #600 Merrillville, IN 46410 800-464-7726
Water Indiana Amercan Water (NW) 800-492-8373	Stormwater Town Of Lowell MS4 Town Hall, 501 East Main Street Lowell, Indiana 46356 219-696-7794
Cable TV Comcast North 219-304-6164	Gas NIPSCO 801 East 86th Avenue #600 Merrillville, Indiana 46410 800-464-7726

UTILITY INFORMATION

UTILITY LOCATIONS ARE TAKEN FROM SUBSTANTIAL ABOVE GROUND EVIDENCE AND APPROXIMATED FROM RECORD AS-BUILTS MADE AVAILABLE (INCLUDING, BUT NOT LIMITED TO, MANHOLES, HYDRANTS, VALVES, UTILITY PEDESTALS AND BOXES, AND MARKS/FLAGS SET ON THE GROUND SURFACE BY OTHERS). PIPE INVERTS HAVE BEEN MEASURED WITH AS MUCH ACCURACY AS CAN BE ACHIEVED WITHOUT CONFINED SPACE ENTRY. **CAUTION:** THERE MAY BE OTHER UTILITIES EXISTING BELOW GROUND THAT WERE NOT MARKED BY OTHERS NOR HAVE VISIBLE ABOVE GROUND EVIDENCE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND DEPTHS OF ALL UTILITIES AND PIPING AS NECESSARY PRIOR TO ANY AND ALL CONSTRUCTION. CONTACT ENGINEER IF ANY DISCREPANCIES DISCOVERED.



CALL 811 OR (800) 382-5544
24 HOURS A DAY, SEVEN DAYS A WEEK

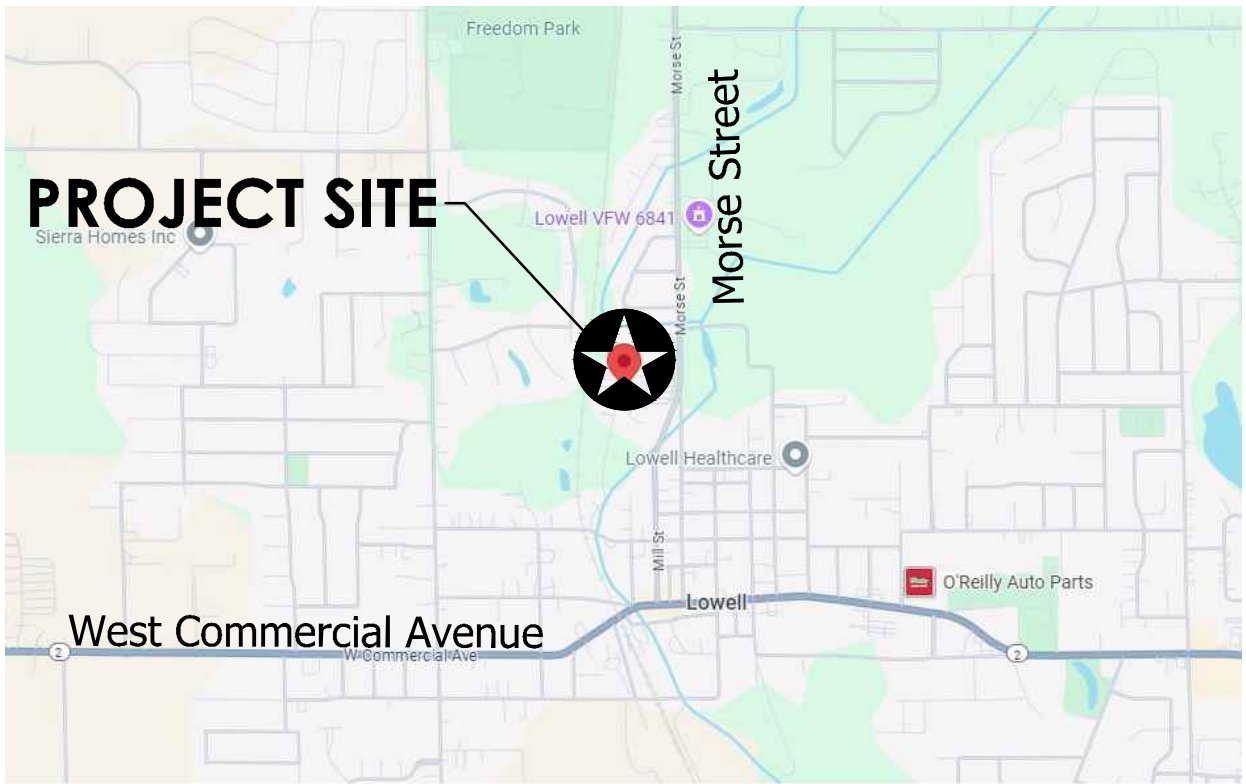
Part of the NW 1/2 of Section 23, T-33-N, R-9-E, Cedar Creek Township, Lake County, Indiana



VICINITY MAP
(NOT TO SCALE)

**OWNER'S
REPRESENTATIVE /
DEVELOPER**
BROOKER CONTRACTING, LLC
1827 COMMERCIAL AVENUE
LOWELL, INDIANA 46356
219-671-6312

SURVEYOR / CIVIL ENGINEER
ABONMARCHÉ
#1033
3500 State Road 38 East Suite 300
Lafayette, Indiana 47905
T 765.234.0099
Contact: Stephen Fields
sfields@Abonmarche.com

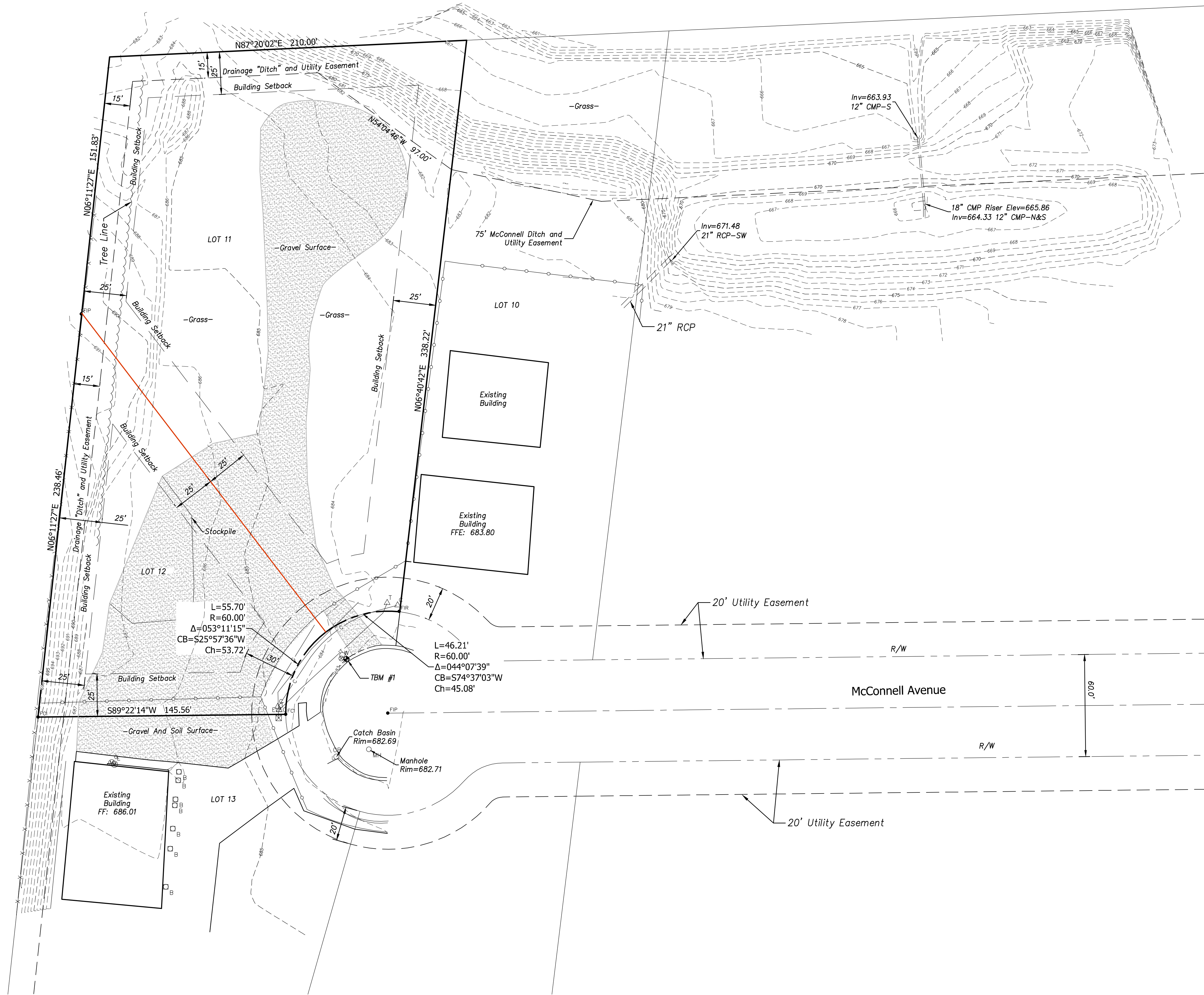


LOCATION MAP
(NOT TO SCALE)

Sheet List Table

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NOTES:

- Field work completed on February 15, 2024.
- The depiction of underground utilities hereon should not be considered exact or complete. Underground utilities are based on the location of the painted marks or flags provided by the Indiana 811 utility location service, ticket numbers 2402082324. Call Indiana 811 prior to any excavation operation.
- Property lines and their associated bearings and distances are based on the record information from deed or recorded plat.
- Bearings are based on Indiana State Plane Coordinate System, West Zone.
- This drawing is not intended to be represented as a retracement or original boundary survey, a route survey, or a Surveyor Location Report.
- Refer to Abonmarche project #24-0208 for additional survey information.
- Approximate Site Area = 55,336 SF (1.27 Acres).

SYMBOL LEGEND:

	- Bollard
	- Catch Basin
	- Electric Meter
	- Electric Transformer
	- Electric Pedestal
	- Fire Hydrant
	- Found Capped Iron
	- Found Iron Rod
	- Gas Meter
	- General Manhole
	- Telephone Pedestal
	- Water Valve

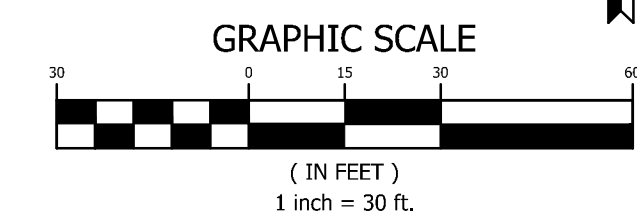
LINETYPE AND HATCH LEGEND:

	- 1' Vertical Contour Lines
	- Underground Cable Line
	- Underground Electric Line
	- Chain Link Fence
	- Gas Line
	- Underground Telephone Line
	- Wire Fence
	- Tree Line
	- Gravel

LEGAL DESCRIPTION:
Lot 11 in McConnel (sic) Plaza Addition to The Town
Of Lowe33 North, Range 9 West, Lake County, Indiana.

LOCAL BENCHMARK

"TBM #1" - NOTCH AT TOP OF CURB NEAR
FIRE HYDRANT AT THE WEST END OF
MCCONNELL AVENUE
ELEV: 683.12 NAVD88



PROJECT:

EXISTING CONDITIONS

SHEET TITLE:

DRAWN BY:

MDR

DESIGNED BY:

MDR

PM REVIEW:

SRF

QA/QC REVIEW:

RTN

DATE:

12/03/2025

SEAL:

PRELIMINARY

SIGNATURE:

DATE:

SCALE:

AS NOTED

ACT JOB #

25-0952

SHEET NO.

V1.0

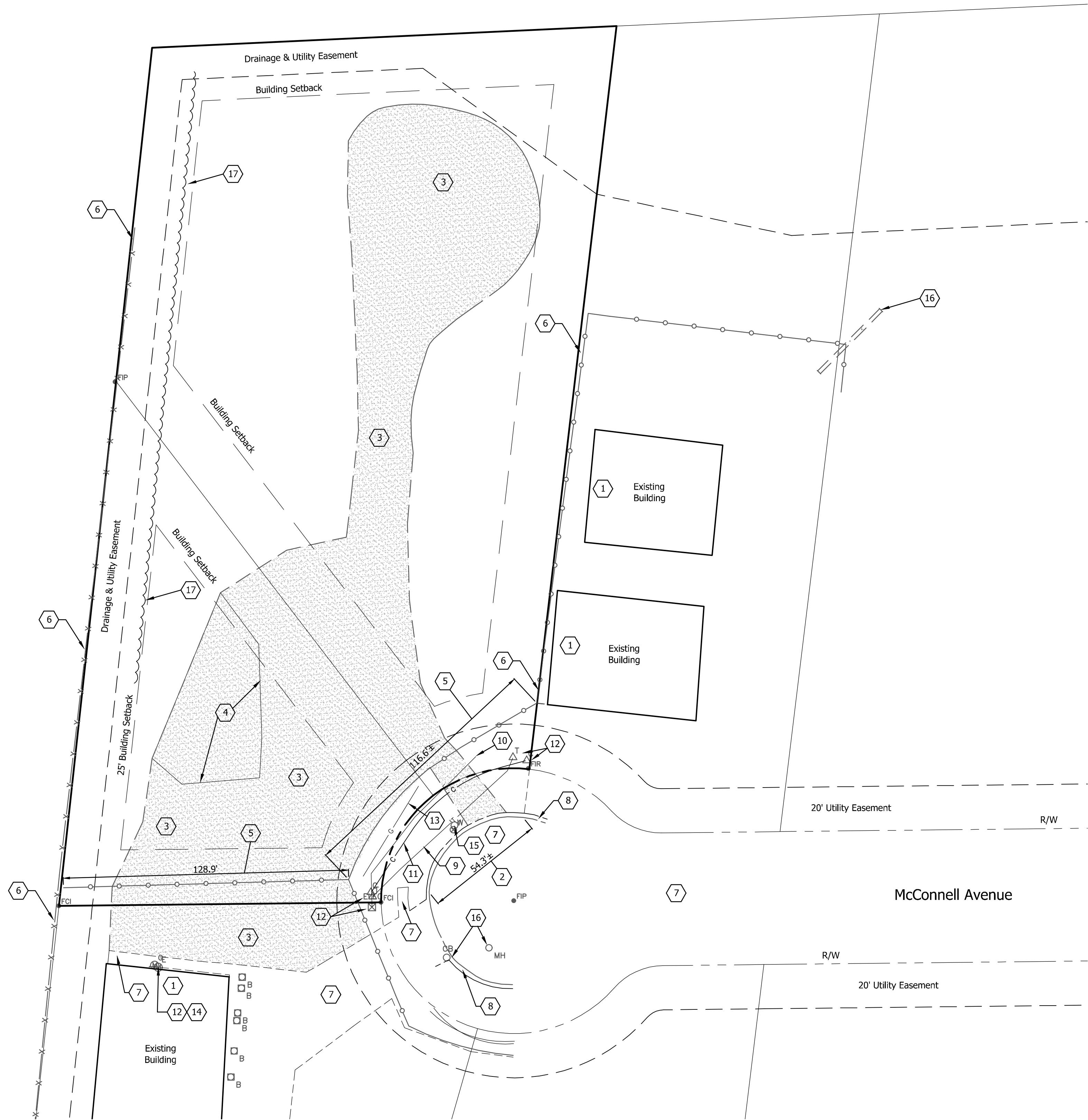
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CALL 811 OR (800) 382-5544
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SYMBOL LEGEND:

	- Bollard
	- Catch Basin
	- Electric Meter
	- Electric Transformer
	- Electric Pedestal
	- Fire Hydrant
	- Found Capped Iron
	- Found Iron Rod
	- Gas Meter
	- General Manhole
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LINETYPE AND HATCH LEGEND:

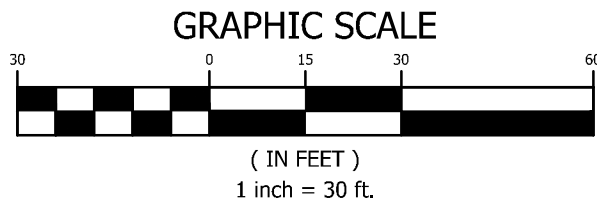
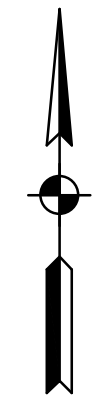
	- Underground Cable Line
	- Underground Electric Line
	- Chain Link Fence
	- Gas Line
	- Underground Telephone Line
	- Wire Fence
	- Tree Line
	- Gravel

DEMOLITION LEGEND

- Protect Buildings And Utilities To Remain During Construction
- Sawcut And Remove Existing Back Of Curbing To Limits Shown, Protect Existing Concrete Gutter Section To Remain And Restore Back Of Curbing At Property Lines; Refer To Site Plan
- Remove Existing Gravel To Grade; Stockpile, Clean And Reuse If Feasible
- Remove/Relocate Existing Stockpile
- Remove Existing Fencing And Posts As Shown; Reconstruct Per Owner
- Protect Existing Fencing To Remain
- Protect Existing Concrete Or Asphalt Pavement To Remain
- Protect Existing Curbing To Remain
- Protect Existing Underground Telephone Line To Remain During Construction
- Protect Existing Underground Electrical Line To Remain During Construction
- Protect Existing Underground Cable TV / Internet Line To Remain During Construction
- Protect Existing Telephone/Electrical Cable Meter And Service To Remain During Construction
- Protect Existing Gas Line To Remain During Construction
- Protect Existing Gas Meter And Service To Remain During Construction
- Remove Existing Water Valve And Fire Hydrant Assembly, Field-Verify Location Of Water Main And Coordinate Relocation Of Service With Owner And Local Utility
- Protect Existing Storm Inlet, Structure Or Piping To Remain During Construction
- Protect Existing Vegetation, Tree Dripline And Root Zone during Construction; Refer To Grading Plan for Any Limits Of Required Vegetation Removal

DEMOLITION NOTES

- Contractor shall abide by the Occupational Safety and Health Administration (OSHA) Standards for Construction.
- Contractor shall follow the Construction Stormwater General Permit (CSGP) regulations and the Stormwater Pollution Prevention Plan (SWPPP) prepared for this project.
- No closing of streets allowed without the approval from governing authority. Contractor to provide maintenance of traffic measures as necessary for construction per local standards and requirements.
- Utility locations are taken from substantial above ground evidence and approximated from record as-builts made available (including, but not limited to, manholes, hydrants, valves, utility pedestals and boxes, and marks/flags set on the ground surface by others). Pipe inverts have been measured with as much accuracy as can be achieved without confined space entry.
- Use **Caution**. There may be other utilities existing below ground that were not marked by others nor have visible above ground evidence.
- Contractor is responsible for field verifying locations and depths of all utilities prior to any construction activities. Contact Engineer with any discovered discrepancies and wait for instruction.
- Contractor must notify Indiana 811, 48 hours prior to any excavation for existing underground utility locations.
- Contractor shall inquire all utility companies prior to construction for locations of underground utilities. Contractor shall coordinate utilities to remain and be removed, during construction, with Owner. Contractor shall not interrupt utility services to existing buildings without receiving permission from the Owner and/or Utility.
- Contractor shall investigate site and contact the County Department of Health for the existence of any existing active or abandoned septic tank system on site. If a septic tank is discovered, coordinate with the local health department to properly remove septic tank for construction.
- Contractor shall field verify for any well locations. Any found well(s) must be properly capped and abandoned by a licensed well driller.
- Remove storm/sanitary structures, and surface materials as indicated or referenced on the drawings to their full extent and depth unless otherwise noted. Where pavement is proposed for removal, all aggregate and debris-filled soil shall be removed.
- Maintain positive drainage throughout construction and post-construction and not to impact adjacent property.
- Contractor to review construction limits and site removal limits with the Owner and decide if temporary construction fence (chain link) is needed around construction staging and work areas, then install prior to construction activities.
- Contractor is responsible for any damaged infrastructure, including but not limited to: utilities, building, paving, irrigation, lighting, or other improvements designated to remain.
- Contractor shall contact the Engineer immediately if contaminated soils are encountered during construction. These soils must be hauled off-site and properly disposed of in accordance with current local, state and federal rules and regulations.
- Contractor shall notify the Jurisdictional Municipality Engineering Department prior to commencing construction in the Right-of-Way.
- Contractor shall remove all vegetation required for construction. See site plans for proposed construction area(s).
- Contractor shall remove topsoil and stockpile the material at a location approved by Owner.
- Removed items shall be disposed of off-site in accordance with all applicable local, state and federal codes and laws.
- Contractor shall coordinate returning any salvaged items (fencing, posts, signage, etc.) at the Owners request.
- Contractor shall plan and determine clearing required for construction. Any removed items such as, but not limited to: structures, trees, shrubs, stumps, vegetation, and other above grade items shall be submitted to Owner for review. Owner may review and make adjustments, if necessary. Protect existing plant material and improvements, from damage, per Owner's request.
- All pavement, curb, and sidewalks shall be saw cut prior to removal to create clean vertical joints.
- Contractor shall designate a specified staging area for recycling, crushing or reusing any existing salvageable pavement or other materials.
- All demolition debris shall be removed from the site on a daily basis to an appropriate facility and no debris shall be disposed of and/or buried on the property.
- Construction staging and other areas disturbed during construction shall be restored to their original conditions, if not better. All disturbed and construction traffic compacted ground shall be scarified to a minimum 6-inch depth prior to restoration. Any undisturbed lawn areas, within project limits shall be maintained by the Contractor.
- Pavement areas marked for removal shall include, but not limited to, asphalt, pavement, concrete pavement, concrete pads, curb, retaining walls, stairs and railings, pavers and any other hardscape items.
- Where pavement is proposed for removal: all aggregate and debris-filled soil shall be removed as part of demolition.
- Existing buildings and foundations shall be completely demolished and removed. All accumulated debris within the existing building shall be removed and disposed of. All utilities shall be disconnected prior to starting demolition operations.



NO.	REVISION DESCRIPTION:	BY:	DATE:
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Box #1033
3500 State Road 38 E., Suite 300
Benton Harbor, MI 49007
Tel: 268.7753
Fax: 268.7753
abonmarche.com

**C & S CONCRETE
CONSTRUCTION, INC.**
7329 MCCONNELL AVENUE, LOWELL, INDIANA 46356

DEMOLITION PLAN

SHEET TITLE:
DRAWN BY:
DESIGNED BY:
PM REVIEW:
QA/QC REVIEW:
DATE:
SEAL:

PRELIMINARY

SIGNATURE:

DATE:

SCALE:

AS NOTED

ACT JOB #

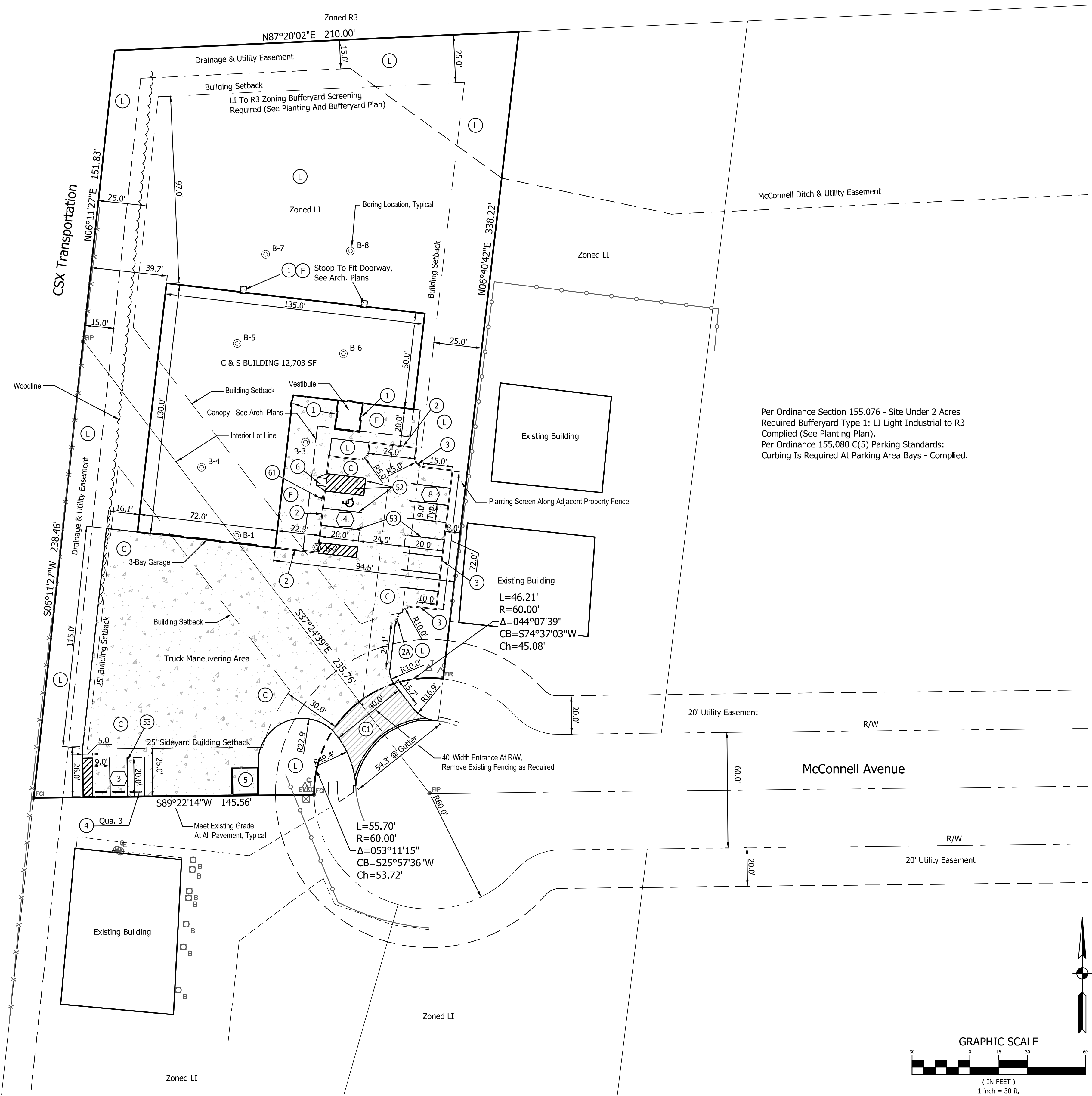
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SHEET NO.

C1.0

Engineering Architecture Land Surveying

COMPANY 2025 ABONMARCHÉ CONSULTING, INC.



GENERAL NOTES

- Current Zoning: "LI" (Light Industrial).
- Existing Land Use: Vacant.
- Proposed Land Use: Concrete Construction.
- Sanitary shall be serviced by Town of Lowell Wastewater Department and water shall be serviced by Indiana American Water.
- Setbacks shall conform to Town of Lowell Zoning Ordinance unless the proper variances have been approved.
- Proposed parking and drives shall be paved and privately owned.
- Site/Building drainage shall be managed onsite with an offsite detention basin and controlled release ultimately into the Municipal sewer system.
- All radii and pavement dimension are to the edge of pavement unless otherwise noted.
- All bufferyard and lighting shall be in accordance with the Town of Lowell Zoning Ordinance unless the proper variances have been obtained.
- Coordinate with utility companies for relocation of any utilities prior to any construction activity.

TABULATED SITE DATA

Parcel Size = 55,385 SF (1.27 Acres±)		
Proposed Land Coverage	Area	Percentage
Proposed Building	12,483 SF*	22.5%
Proposed Hard Surface	23,857 SF	43.1%
Total Proposed Hard Surface Area	36,340 SF	65.6%
Open Space / Landscape Area	19,045 SF	34.4%
Total	55,385 SF	100%

PARKING CALCULATIONS

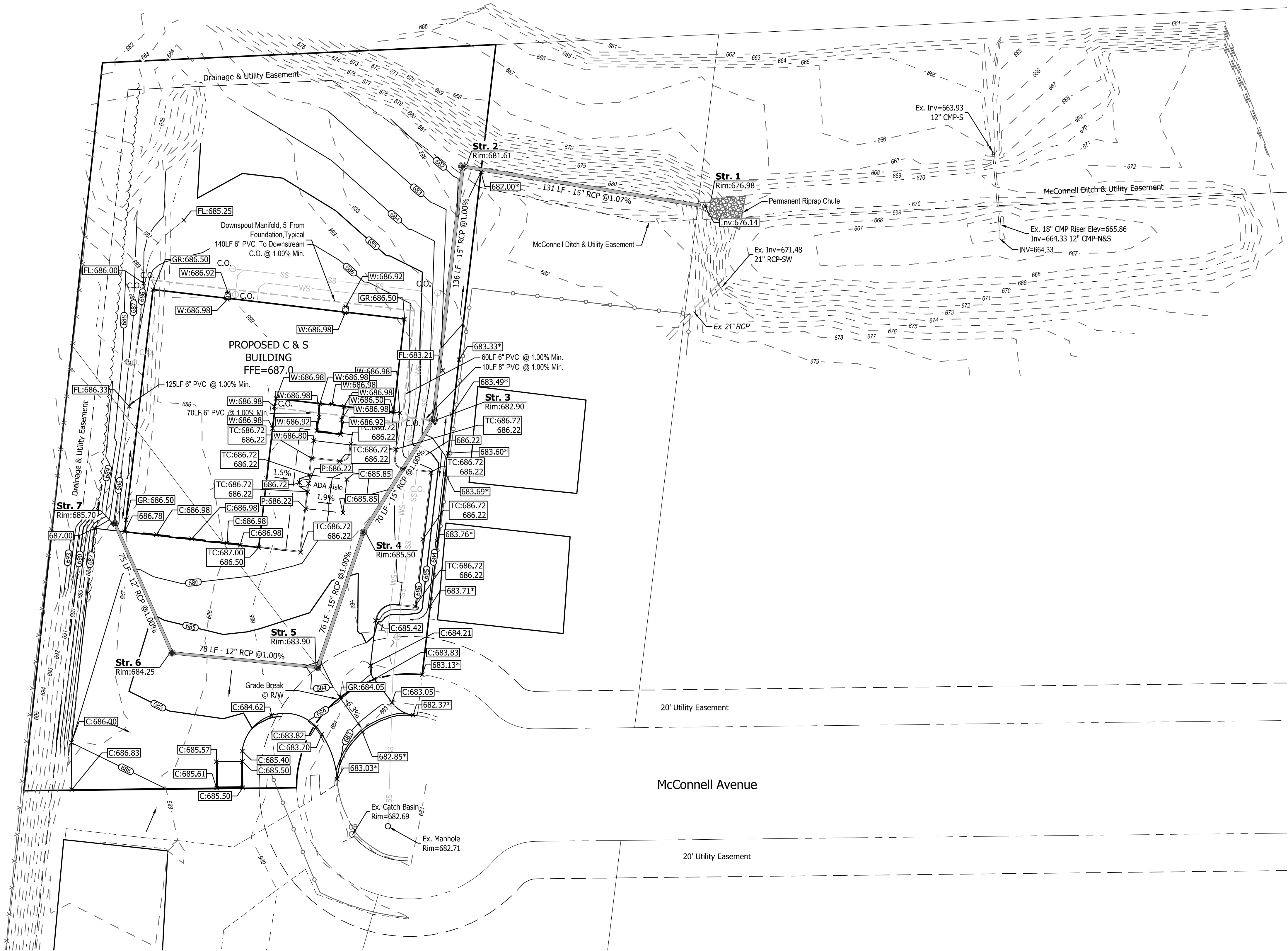
Parking Per Town Of Lowell Ordinance Section 155		
Parking Required:	1 Space per Employee on Largest Shift (5,160 SF Office, 6,823 SF Warehouse, 500 SF Vestibule, Misc.)*	12 Spaces
Parking Provided:	Including 1 Accessible Space	15 Total Spaces
Loading Berth :	1 Required	3 Provided for Semis At Garage Addition

LEGEND

CONTRACTOR SHALL FOLLOW THE LATEST STATE OF INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) SPECIFICATION FOR PAVEMENT MATERIALS AND INSTALLATION PROCEDURE.

- HEAVY-DUTY RIGID CONCRETE PAVEMENT**
 - 8" Class "A" Concrete with Fiber Reinforcement or 6"x6" W.W.M.
 - 6" Compacted INDOT #53 Aggregate
 - Curing compound, light broom finish perpendicular to traffic direction
 - All joints in accordance with ACI 330, not to exceed 10' x 10'
 - Sawcut joints, 2" deep, install silicon joint sealant
 - If multiple pours, construction joints in accordance with ACI 330
 - Install 1/2" expansion joint with elastomeric filler adjacent to the building
- Replace Pavement Within Right-Of-Way To Town of Lowell Standards
- Number of 9'x20' Parking Spaces
- ADA International Symbol of Accessibility, Paint Blue
- 4" Depth Concrete Sidewalk
- Greenspace, See SWPPP and Planting Plan
- Building Stoop, Concrete, Tied to Footing, 0.02' Below Doorway Threshold And Slope Away From Entrance
- Integral Curb And Walk
- Curb Taper - 2' Unless Shown Otherwise
- 6" Standard Monolithic Curbing
- 6" Precast Concrete Wheelstop, Anchor With Bar 2' From Edge Of Pavement
- Heavy-Duty Concrete Dumpster Pad, 14'x14' Shown, See Arch. Plans Walls Or Enclosure
- Flanged Accessible Ramp, Center On Unloading Aisle Stall
- Line, Paint, Solid, Blue, 4 in.
- Line, Paint, Solid, White, 4 in.
- Van Accessible ADA Parking Sign, Post-Mount
- Soil Boring Location

O:\PROJECTS\2025\25-0952 BROOKER CONTRACTING-MCCONNELL AVE\20 CIVIL\24 CAD\PLANS\25-0952 GRADING PLAN.DWG GRADING AND DRAINAGE PLAN ERIC FISHER 12.3.2025 1:04 PM



GRADING NOTES

- Contractor shall follow the latest Municipality and the State of Indiana "CSGP" Soil Erosion Practices, See Erosion Control Sheets.
- All topsoil shall be removed and temporarily stockpiled onsite at a location approved by the Owner. A minimum of four (4) inches of topsoil shall be placed on all disturbed areas outside the building and parking areas.
- All exposed subgrade shall be proof-rolled and witnessed by a Geotechnical Engineer or qualified representative to determine unsuitable soil locations prior to any paving operations. Any unsuitable soil shall be excavated, backfilled, and compacted with suitable material in accordance with the plans and capable of supporting the anticipated loadings of the project.
- Positive drainage shall be maintained to prevent any ponding of water or encroachment onto adjacent properties.
- Proposed contours show grading intent only. Contractor shall use proposed spot grade elevations and check all grade stakes to ensure positive drainage to stormwater system is achieved. Contact Engineer if additional grades are needed or if any discrepancies or conflicts which become apparent before or during construction are found so that clarification or redesign may occur.

PERMANENT EXCESS SOIL REMOVAL

- Excess soil and unsuitable soil not needed shall be removed from project site to another site permanently.
- Contractor shall be responsible to execute any agreements or contracts required for the relocated soil material.
- Contractor shall obtain any required permits and implement erosion control measures in accordance to the Indiana Stormwater quality manual and any local ordinances.

STORM SEWER NOTES

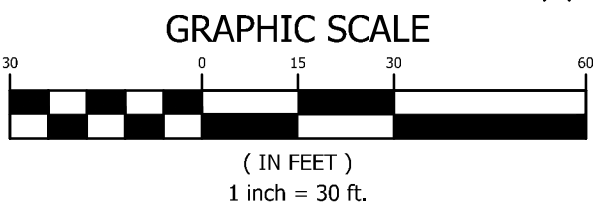
- All proposed Storm pipe shall be in accordance with the Lake County Surveyor's Office Standards and Specifications.
- All Storm pipe 12" and smaller shall be SDR 35 PVC OR ADS N-12 HDPE unless noted otherwise. All Storm pipe 15" and larger shall be ADS N-12 HDPE unless noted otherwise.
- Pipe shall be bedded per pipe manufacturer, and backfilled with suitable clean granular material in accordance with the plans; see pipe trench detail.
- Storm pipe shall maintain 10'-0" minimum horizontal and 18" minimum vertical separation between potable water pipes. If this cannot be met, the storm pipe shall be constructed of water grade pipe meeting AWWA standards for a distance of 10 feet each side of the water pipe. At crossings, one full length of water pipe shall be installed so that the joints will be as far from the storm pipe as possible.
- Pipe lengths are measured from center of structures.
- Roof downspouts storm piping: Prior to construction, Contractor shall review Architectural Drawings accounting for all downspouts. Downspout storm piping shall be intercepted and connected to the storm sewer. Provide all necessary piping, fittings, and transition adapters to connect downspout piping to the storm sewer. See Typical Downspout Connection per Construction Details.

LEGEND

	Existing Contours
	Proposed Contours
	Spot Elevation
	Top Of Pavement / Ground
	Match Existing Elevation
	FFE: Finish Floor
	R Rim
	C: Top Of Concrete
	W: Top Of Walk
	FL: Flowline
	GR: Ground
	General Drainage Direction
	Storm Inlet Or Manhole W/ Storm Pipe
	C.O. Clean Out
	SS Sanitary Service Line
	WS Water Service Line

LOCAL BENCHMARK

"TBM #1" - NOTCH AT TOP OF CURB NEAR
FIRE HYDRANT AT THE WEST END OF
MCCONNELL AVENUE
ELEV: 683.12 NAVD88



Box #1033
3500 State Road 38 E., Suite 300
Vaporario
Hobart, Indiana 46340
Tel: 765.234.0099
Fax: 765.234.0098
abonmarche.com

Engineering, Architecture, Land Surveying

C & S CONCRETE
CONSTRUCTION, INC.
7329 MCCONNELL AVENUE, LOWELL, INDIANA 46356

PROJECT:

GRADING AND DRAINAGE
PLAN

SHEET TITLE:

DRAWN BY:

EJF, LDB

DESIGNED BY:

EJF, LDB

PM REVIEW:

SRF

QA/QC REVIEW:

RTN

DATE:

12/03/2025

SEAL:

PRELIMINARY

SIGNATURE:

DATE:

SCALE:

AS NOTED

ACT JOB #

25-0952

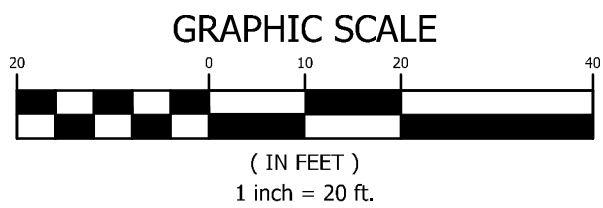
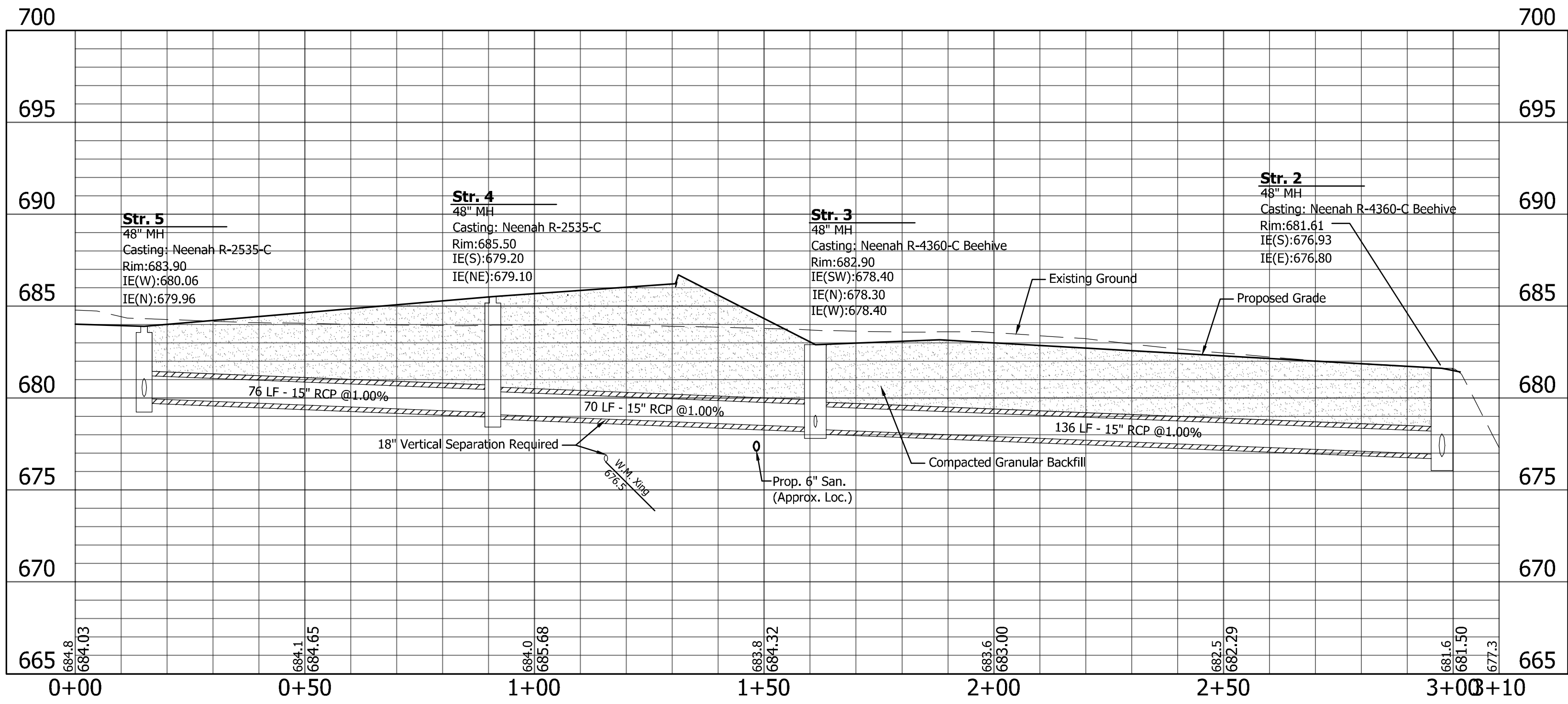
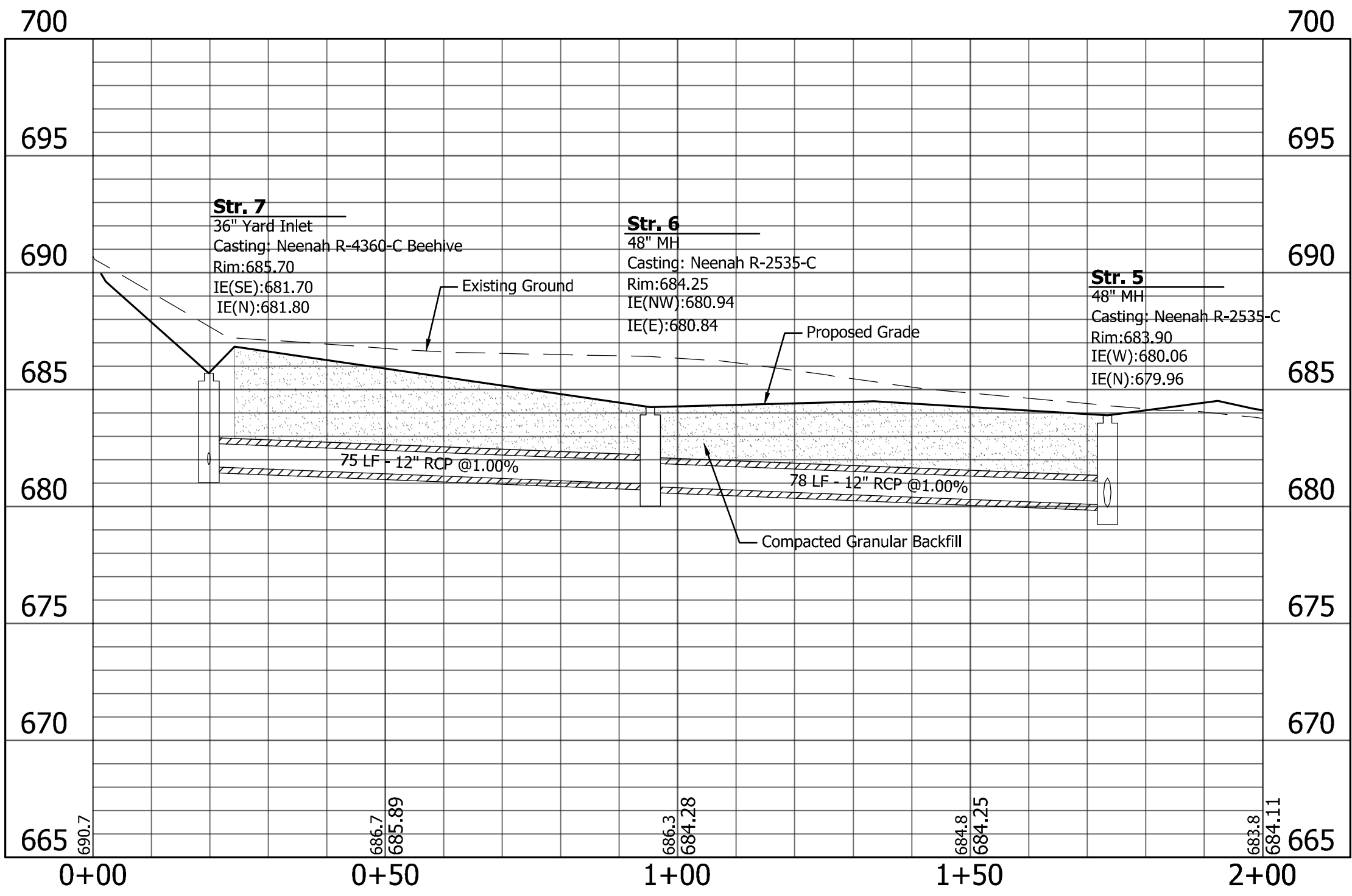
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BY: DATE:

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PRELIMINARY

STORM SEWER PLAN AND PROFILE 1

C & S CONCRETE CONSTRUCTION, INC.
7329 MCCONNELL AVENUE, LOWELL, INDIANA 46356

ABONMARCHÉ
Box #1033
3500 State Road 38 E., Suite 300
Hobart, Indiana 46342
Tel: 765.235.0752
Fax: 765.235.0099
abonmarche.com

Benton Harbor
South Bend
Fort Wayne
Lafayette

Vaporario
Hobart
Grand Haven
Grand Rapids

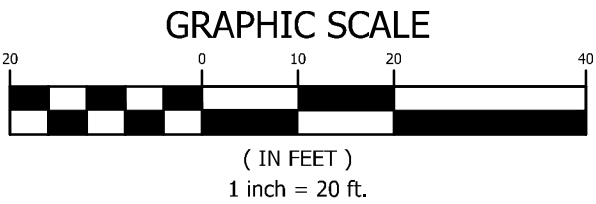
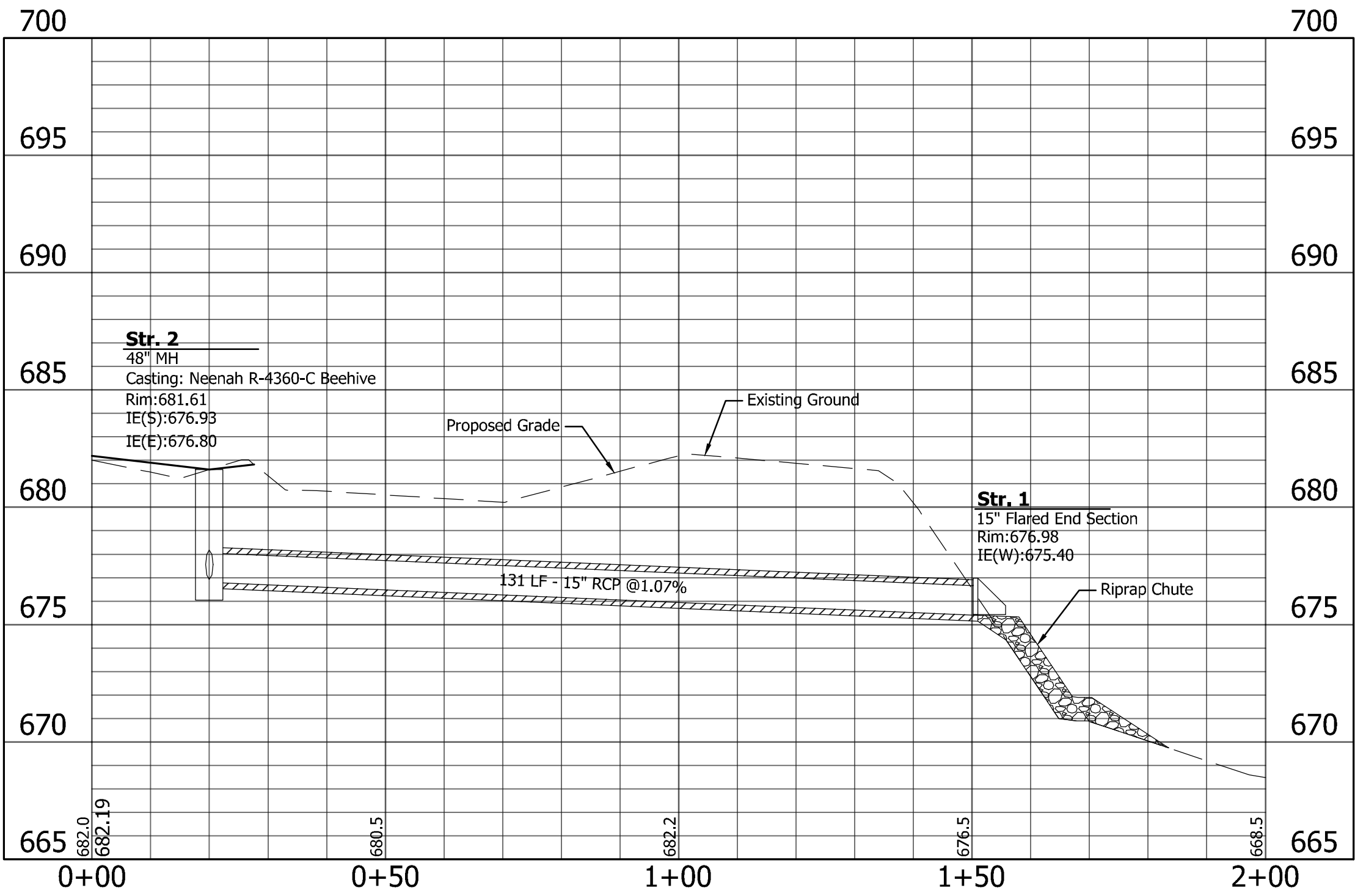
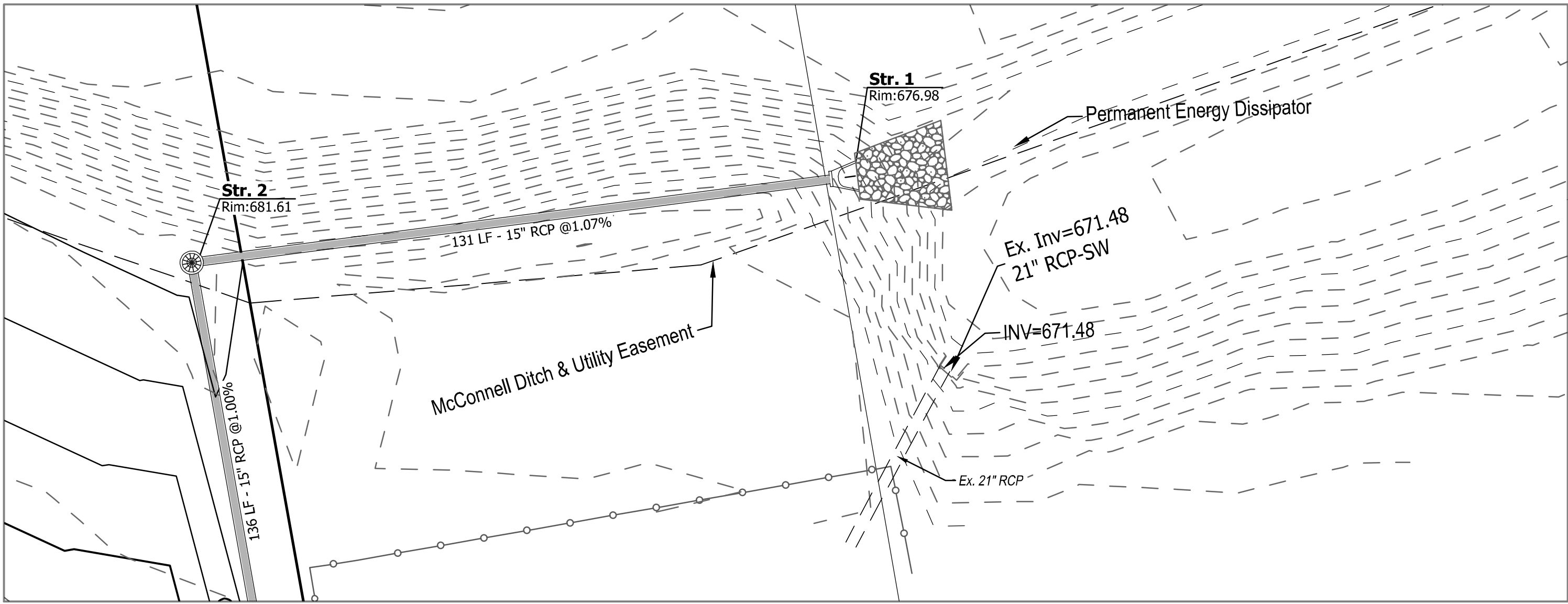
Engineering Architecture Land Surveying

NO.	REVISION DESCRIPTION	BY	DATE
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Proposed Structure Table			
Structure Number	Rim Elevation	Invert Elevations	Type and Casting
1	676.98	INV. W = 675.40 15" RCP	15" Flared End Section
2	681.61	INV. S = 676.93 15" RCP INV. E = 676.80 15" RCP	48" MH Casting: Neenah R-4360-C Beehive
3	682.90	INV. SW = 678.40 15" RCP INV. N = 678.30 15" RCP INV. W = 678.40 8"	48" MH Casting: Neenah R-4360-C Beehive
4	685.50	INV. S = 679.20 15" RCP INV. NE = 679.10 15" RCP	48" MH Casting: Neenah R-2535-C
5	683.90	INV. W = 680.06 12" RCP INV. N = 679.96 15" RCP	48" MH Casting: Neenah R-2535-C
6	684.25	INV. NW = 680.94 12" RCP INV. E = 680.84 12" RCP	48" MH Casting: Neenah R-2535-C
7	685.70	INV. SE = 681.70 12" RCP INV. N = 681.80 6"	36" Yard Inlet Casting: Neenah R-4360-C Beehive



NO.	REVISION DESCRIPTION:	BY:	DATE:
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PRELIMINARY

SIGNATURE: _____
DATE: _____
SCALE: AS NOTED
ACT JOB # 25-0952
SHEET NO.

C3.2

STORM SEWER PLAN AND
PROFILE 2

C & S CONCRETE
CONSTRUCTION, INC.
7329 MCCONNELL AVENUE, LOWELL, INDIANA 46356

PROJECT:

SHEET TITLE:

DRAWN BY: MDR
DESIGNED BY: MDR
PM REVIEW: SRF
QA/QC REVIEW: RTN
DATE: 12/03/2025
SEAL:

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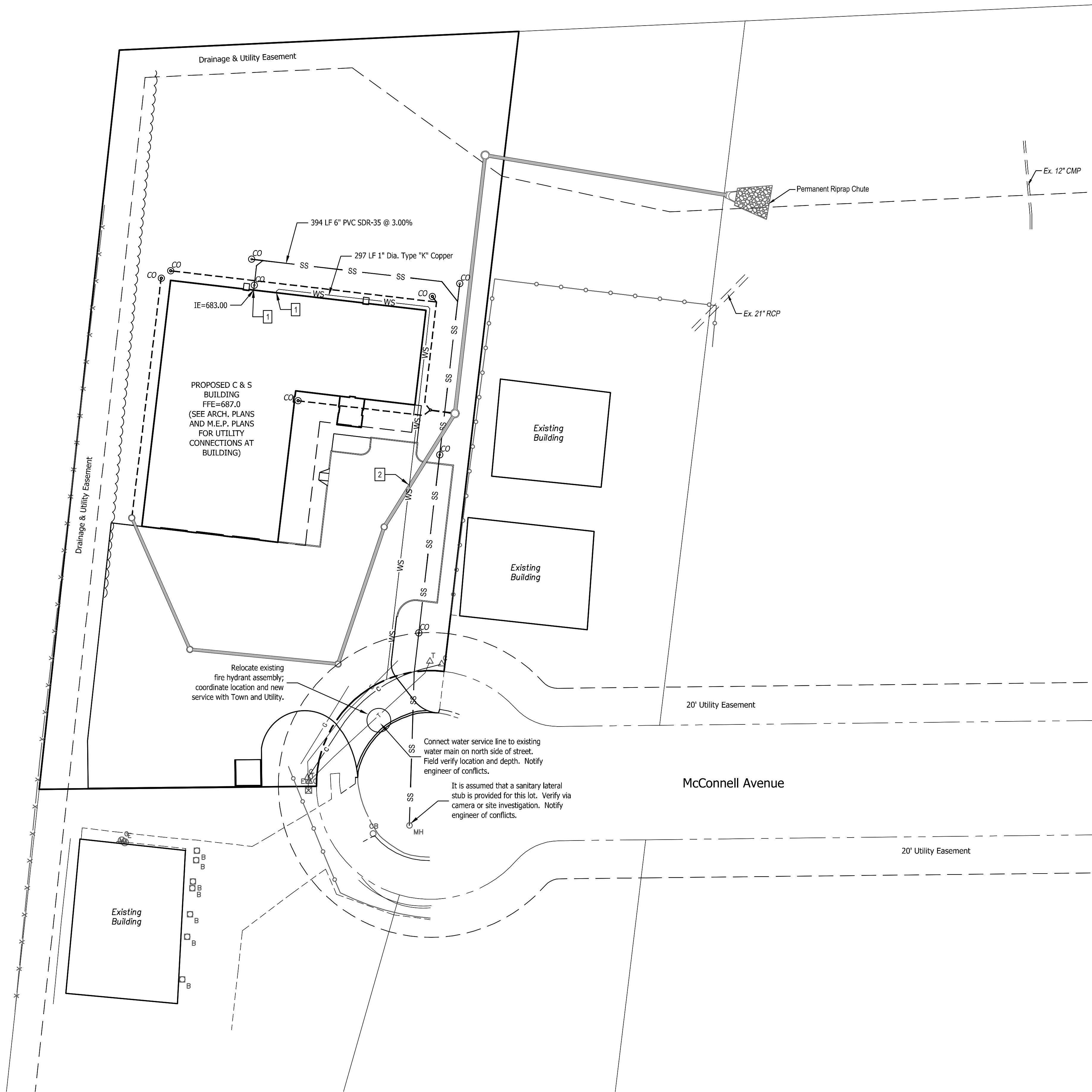
Box #1033
3500 State Road 38 E., Suite 300
Lafayette, IN 47905
765.235.0099
abonmarche.com

Benton Harbor
South Bend
Elkhart
Fort Wayne
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Grand Haven
Grand Rapids

Engineering Architecture Land Surveying

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CONSTRUCTION NOTES

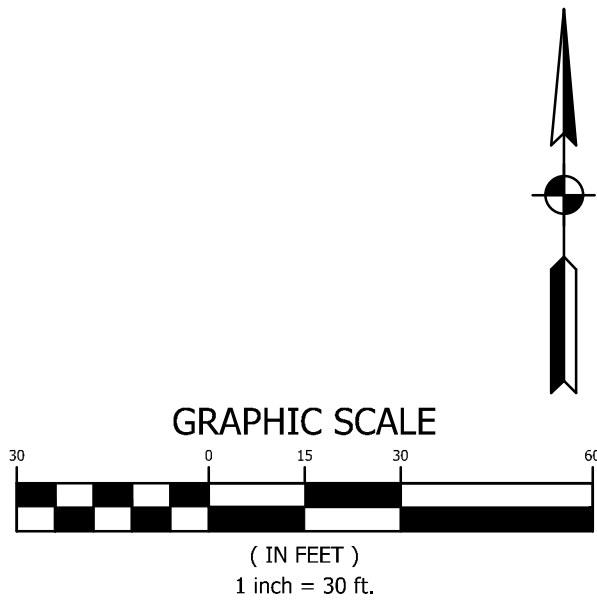
- Construction, Materials, and Testing shall be in accordance with the latest Standard Construction Specifications of The Town of Lowell and Lake County.
- Contractor shall inquire all utility companies prior to construction for locations of underground utilities. Any damages done to any public and/or private properties during construction shall be repaired at the Contractor's expense.
- Unsuitable materials that could affect the integrity of the pipes and/or pavement shall be properly treated.
- Any removed and/or disturbed pavement, sidewalk, curb, etc., shall be replaced using the same type of material and brought back to its original grade and alignment.
- No closing of streets shall be permitted without prior approval from the Municipality.
- Contractor shall take all necessary precautions to protect the work and safety of the public and provide, erect, and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs, and other traffic control devices in accordance with the Indiana Manual on Uniform Traffic Control Devices for Streets and Highways.
- Contractor shall obtain all necessary project permits form all respective governmental agencies with the exception of the Soil Erosion Permit. The Developer will obtain this permit.
- All backfill for pipe trenches and site grading shall be performed in 6-inch lifts maximum using suitable granular material and compacted to 100% Standard Proctor to proposed subgrade. Pipe bedding shall be in accordance with ASTM D-2321 for flexible and rigid pipe. Backfill material and compaction testing shall be reviewed and performed by a qualified geotechnical testing firm approved by the Architect/Engineer.
- Contractor shall verify the water table and include in the bid the cost for dewatering. The water table shall be lowered to 24 inches below the pipe invert prior to installation.
- Water and sewer pipes shall have a minimum horizontal separation of 10 feet from edge of pipe to edge of pipe. Whenever water pipes must cross above or below sewer pipes, a minimum vertical separation of 18 inches is required between the outside of the water pipe and the outside of the sewer pipe. If this cannot be met, the sewer pipe shall be constructed of water grade pipe meeting AWWA Standards for a distance of 10 feet each side of the water pipe. At crossings, one full length of water pipe shall be installed so that the joints will be as far from the sewer pipe as possible.
- Discrepancies or conflicts in the plans and/or site conditions shall be communicated to the General Contractor and Engineer to ensure that clarifications and/or revisions can be made prior to construction.

LEGEND

- WS Water Service Line
- SS Sanitary Service Line
- CO Cleanout
- Storm Pipe and Structure; See Drainage and Grading Plan

Note: Pipe Lengths are measured from center of structures.

- 1 Utility Connection; Coordinate with Building Plans
- 2 Maintain 18" Vertical Separation. Dip water pipe(s) as required for construction.



NO.	REVISION DESCRIPTION:	BY:	DATE:
-----	-----------------------	-----	-------



Box #1033
3500 State Road 38 E., Suite 300
Indianapolis, IN 46226
765.234.0099
abonmarche.com

C & S CONCRETE
CONSTRUCTION, INC.
7329 MCCONNELL AVENUE, LOWELL, INDIANA 46356

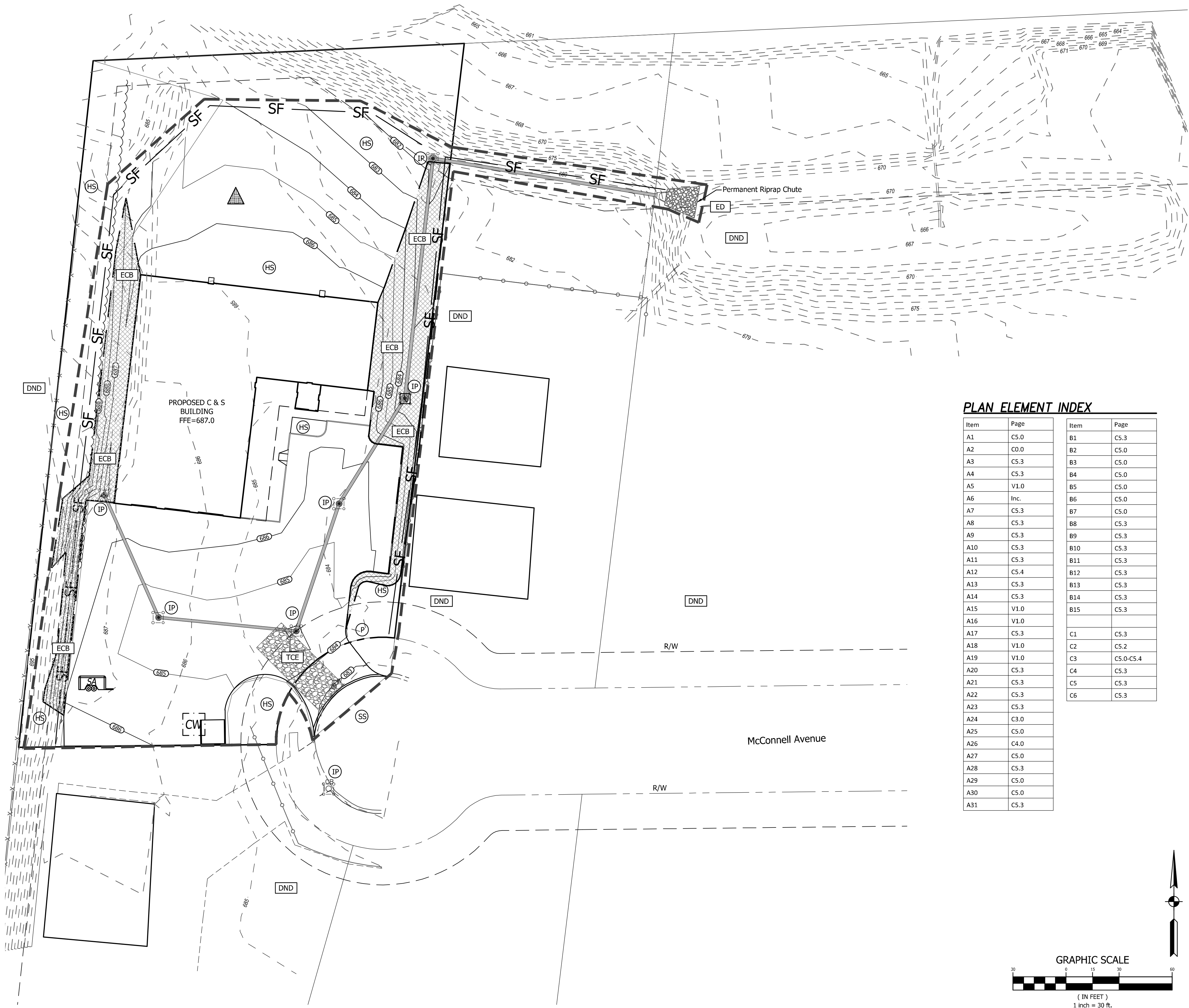
UTILITIES PLAN

SHEET TITLE:	
DRAWN BY:	LDB
DESIGNED BY:	LDB
PM REVIEW:	SRF
QA/QC REVIEW:	RTN
DATE:	12/03/2025
SEAL:	
SIGNATURE:	
DATE:	
SCALE:	AS NOTED
ACT JOB #	25-0952
SHEET NO.	C4.0

PRELIMINARY

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Engineering, Architecture, Land Surveying

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PLAN ELEMENT INDEX

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A3	C5.3	B3	C5.0
A4	C5.3	B4	C5.0
A5	V1.0	B5	C5.0
A6	Inc.	B6	C5.0
A7	C5.3	B7	C5.0
A8	C5.3	B8	C5.3
A9	C5.3	B9	C5.3
A10	C5.3	B10	C5.3
A11	C5.3	B11	C5.3
A12	C5.4	B12	C5.3
A13	C5.3	B13	C5.3
A14	C5.3	B14	C5.3
A15	V1.0	B15	C5.3
A16	V1.0		
A17	C5.3	C1	C5.3
A18	V1.0	C2	C5.2
A19	V1.0	C3	C5.0-C5.4
A20	C5.3	C4	C5.3
A21	C5.3	C5	C5.3
A22	C5.3	C6	C5.3
A23	C5.3		
A24	C3.0		
A25	C5.0		
A26	C4.0		
A27	C5.0		
A28	C5.3		
A29	C5.0		
A30	C5.0		
A31	C5.3		

EROSION CONTROL NOTES

- Contractor shall implement, install and maintain all erosion control measures in accordance with this plan, the current Indiana Stormwater Quality Manual and the Town of Lowell Standards.
- It is the responsibility of the Contractor to remove all mud, dirt, gravel and any other materials tracked onto any public or private streets, parking lots, or walks. At minimum, sediment shall be removed daily. Airborne dust shall be kept to a minimum by using water or other methods as necessary.
- Contractor shall inspect all erosion control measures after each rainfall event or at minimum every 5 business days. The Contractor shall cleanup sediment and restore effective erosion control devices.
- Temporary erosion control measures shall be maintained until all disturbed areas are well established with vegetation.
- Until the project is accepted by the Owner, shall maintain all erosion control measures to prevent sediment from entering public and private storm sewers and leaving the project site.
- Field conditions shall determine the location and amount of silt fence required to prevent sediment from entering public and private storm sewers and from leaving the project site.
- All areas disturbed by construction shall be stabilized with seeding or an alternate surface stabilization measure. Temporary seeding shall take place as soon as possible on any bare or thinly vegetated areas which have less than 70% cover and on all areas which remain inactive for a period of 15 days or more.
- A temporary construction entrance shall be installed and maintained to minimize soil tracked onto private and public roadways, parking lots, and driveways. A proposed location is shown on the plan. The entrance shall be installed prior to any other construction activity. See "Temporary Construction Entrance" detail. The installation of the entrance is a land disturbing activity and stormwater inspections are to commence with the installation of the entrance.
- Existing inlets that may be impacted, by construction, shall have inlet protection. The intent of this measure is to prevent sediment from entering existing drainage systems. Contractor shall protect any inlets, not shown on the plan, that are affected by construction activities.
- Soil Stabilization: Hydro Seeding can be used to initially stabilize the site. If erosion occurs: Reestablish grade and stabilize by installing Erosion Control Blanket with seed.
- The SWPPP drawings are not Construction Plans/Drawings, but are to be used by the Contractor during Construction to establish, monitor, and address Erosion Control Issues.
- No off-site sediment flows or sediment laden stormwater flows are to occur at anytime. Silt Fencing to be installed as needed to contain sediment flows and sediment laden stormwater flows. Additional erosion control measures shall be installed as needed.

PERMANENT EXCESS SOIL REMOVAL

- Excess soil and unsuitable soil not needed shall be removed from project site to another site permanently.
- Contractor shall be responsible to execute any agreements or contracts required for the relocated soil material.
- Contractor shall obtain any required permits and implement erosion control measures in accordance to the Indiana Stormwater quality manual and any local ordinances.

LEGEND

TCE		Temporary Construction Entrance, See Erosion Control Details
SA		Staging Area, Coordinate with Owner
SS		Temporary Soil Stockpile, See Erosion Control Details
CW		Concrete Washout, See Erosion Control Details
P		Construction Limits
SS		Permit Posting Location
HS		Street Sweeping
ECB		Permanent Seeding, See Hydroseeding Notes
IP		Erosion Control Blanket, See Erosion Control Details
DND		Inlet Protection, See Erosion Control Details
ED		Silt Fence, See Erosion Control Details
		Do Not Disturb, No Exceptions!
		Shot-Rock Rip-Rap Energy Dissipater, 6" Depth Minimum Over Weed Barrier Geotextile; Permanent Installation

Anticipated Land Disturbed Area, Construction Limits: 1.65± Acres (71,657 SF)

Hydroseeding General Information

Definition
Hydroseeding is a mechanical method of applying seed, fertilizer, and mulch to land in one step.

Description and Purpose
Hydroseeding typically consists of applying a mixture of wood fiber, seed, fertilizer, and stabilizing emulsion with hydro-mulch equipment, which temporarily protects exposed soils from erosion by water and wind.

The practice may also be called hydro mulching, hydraulic planting, hydraulic mulch seeding, and hydroseeding.

Pollutant(s) controlled:
Suspended Sediments

Pollution Removal Efficiencies:
Hydroseeding initially reduces sediment generation by 70 to 80% as compared to sediment production off bare slopes.

Comparison and Alternative BMPs
Mulching

Seeding/Vegetation
Rolled Erosion Control Products

Advantages and Disadvantages
Advantages:
Tackifiers can be used with the application to help keep the seed in place
Provides mulching medium around the seed to hold moisture
Disadvantages:
Hydroseeding may be used alone only when there is sufficient time in the season to ensure adequate vegetation establishment and erosion control. Otherwise, hydroseeding must be used in conjunction with a soil binder or mulching
Hydroseeding may be inappropriate in dry periods without supplemental irrigation
Wood fiber hydraulic mulches are generally short-lived (only last a part of a growing season) and need 24 hours to dry before rainfall occurs to be effective
May not be able to access remote areas with hydroseeder
Location
Hydroseeding is applied on disturbed soil areas requiring temporary protection until permanent vegetation is established or disturbed soil areas that must be re- disturbed following an extended period of inactivity
General Characteristics
Hydraulic planting mulch is the ingredient that makes the technique possible. Water-laden mulch shot from high-pressure hose or spray gun travels farther than seed and water alone. Once the mulch is on the soil surface, it creates a "mat" or blanket that holds the seed in place, retains soil moisture, resists wind and water erosion, and creates a favorable environment for seed germination.
Mulch materials may be made from wood chips, newsprint, or corrugated cardboard. Some products may include synthetic poly-based fibers or natural agricultural fibers, paper mill sludge, sawdust, silt papers, or some combination of these.
Each mulch product group has unique performance characteristics and associated costs. Some materials simply perform the mulch function better than others
Mulch Fiber length is the key to holding power, while germination is most influenced by moisture holding ability and application rates.
Virtually any fertilizer formulation can be incorporated into the hydroseeding slurry. It is important to use soil testing to determine the appropriate fertilizer for the site.
A difficult to access site is best fertilized with a long acting or time-release product at the same time it is seeded. An easily accessible site can be fertilized (again) after germination.
Tackifier is powdered or granular glue, which when added to the slurry, serves to glue the mulch blanket in place, helping it to withstand wind and rain erosion. Steep slopes are best protected with a tackifier, though any site susceptible to erosion (including that caused by the project's own irrigation) should be a candidate.
A wide variety of special use products can be incorporated into the hydroseed slurry when conditions dictate. Soil amendments, such as lime and gypsum, or organics such as sludge and humus can be applied right along with the seed and other ingredients. Dyes, surfactants,

growth stimulants, fungicides, inoculates, and a host of other liquid, powdered and granular products are also widely available.

Materials
Cellulose Fiber Mulch, Fertilizer, Tackifier, and Hydroseed mix.

Design Specifications
To select appropriate hydroseeding mixtures, an evaluation of site conditions shall be performed with respect to:
soil conditions
site topography
season and climate
vegetation types
maintenance requirements
sensitive adjacent areas
water availability
plans for permanent vegetation

Paper Mulch is frequently applied at 1,200–1,500 pounds per acre (approximately 25lbs.–35 lbs. per 1,000 square feet). With a polyacrylamide additive, such rates can be effective. Many contractors avoid using more than 2,000–2,500 lbs per acre of paper mulch, because too much paper mulch tends to crust, and can inhibit germination.

Wood Mulch is most effective at rates beginning at 2,000 lbs per acre (about 45 lbs. per 1,000 square feet). In very hot conditions, 3,000 lbs (about 70 lbs. per 1,000 square feet) per acre will provide more moisture retention, and will therefore improve the probability of success significantly. A guar based tackifier is also highly recommended to improve the probability of yielding an excellent grass stand.

Banded Fiber Matrix rates start at about 3,000 lbs per acre. At 4,000 lbs. per acre (about 90 lbs. per 1,000 square feet), most wood based Banded Fiber Matrix products provide an excellent probability of achieving total coverage of grass, even when pounded with destructive rains or in very hot conditions.

Regardless of the quality of the mulch protection, rainfall or irrigation is always necessary to produce a stand of grass.

Guar tackifier can be used at 25–150 lbs per acre. The standard recommend application rate is 1½ lbs per 1,000 Sq. ft. or about 60 lbs per acre. This product has been the mainstay as a glue additive for hydro-mulching for many years.

Seed and fertilizer recommendations are dependent upon the location of the area to be treated. Hydroseeding can be accomplished using a multiple-step or one-step process.

The multiple-step process ensures maximum direct contact of the seeds to soil.

When the one-step process is used to apply the mixture of seed, fiber, etc., the seed rate shall be increased to compensate for all seeds not having direct contact with the soil.

Follow-up applications shall be made as needed to cover weak spots.

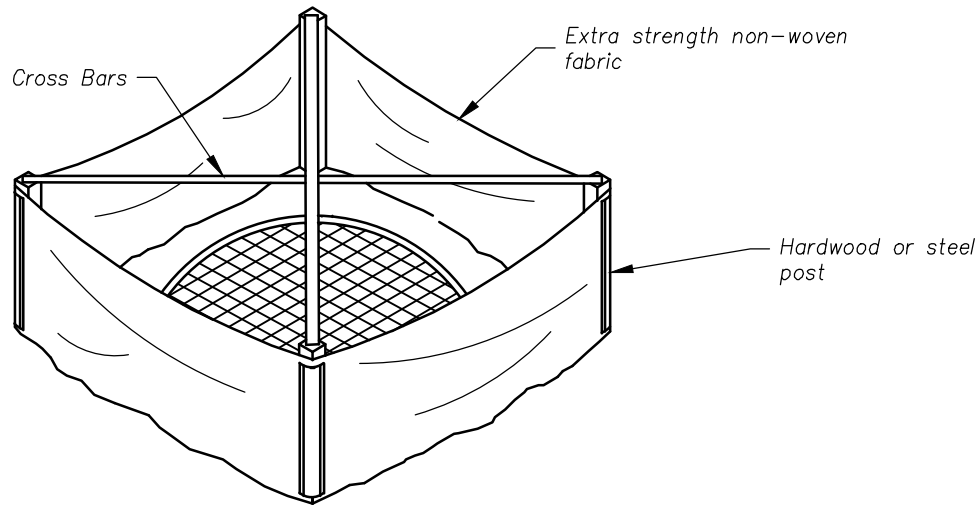
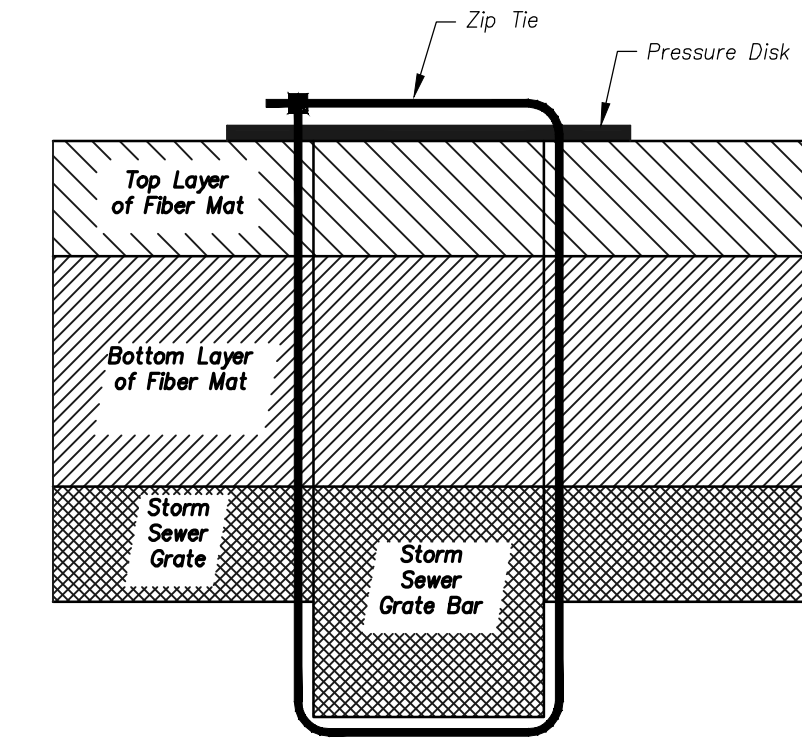
The time allowed between placement of seed in the hydraulic mulcher and the emptying of the hydraulic mulcher tank should not exceed 30 minutes.

Application of the slurry should proceed until a uniform cover is achieved. The applicator should not be directed at one location for too long a period of time or the applied water will cause erosion.

Construction Guidelines
Prior to application, roughen embankment and fill areas by rolling with a crimping or punching type roller or by track walking. Track walking shall only be used where other methods are impractical. Hydraulic matrices require 24 hours to dry before rainfall occurs to be effective

Maintaining
Hydromulched slopes should be inspected periodically for damage due to wind, water, or human disturbance.

Maintenance
Repair all damaged areas immediately using hydromulching at the original specifications or straw mulch.
Supplemental watering may be required.



INLET PROTECTION PRIOR TO CURB/PAVING

DETAIL

SILT FABRIC CURB SEDIMENT BARRIER
(NOT TO SCALE)

INLET PROTECTION

FIBER MAT
(NOT TO SCALE)



INSTALLATION NOTES

1. Dig trench around perimeter of inlet.
2. Drive posts into soil and stretch geotextile fabric tightly between each post.
3. Place bottom 12" of geotextile fabric into trench.
4. Backfill with soil material and compact. Brace as necessary.
5. The frame shall be wrapped with one continuous piece of geotextile fabric and a 2' overlap shall be provided.

MAINTENANCE NOTES

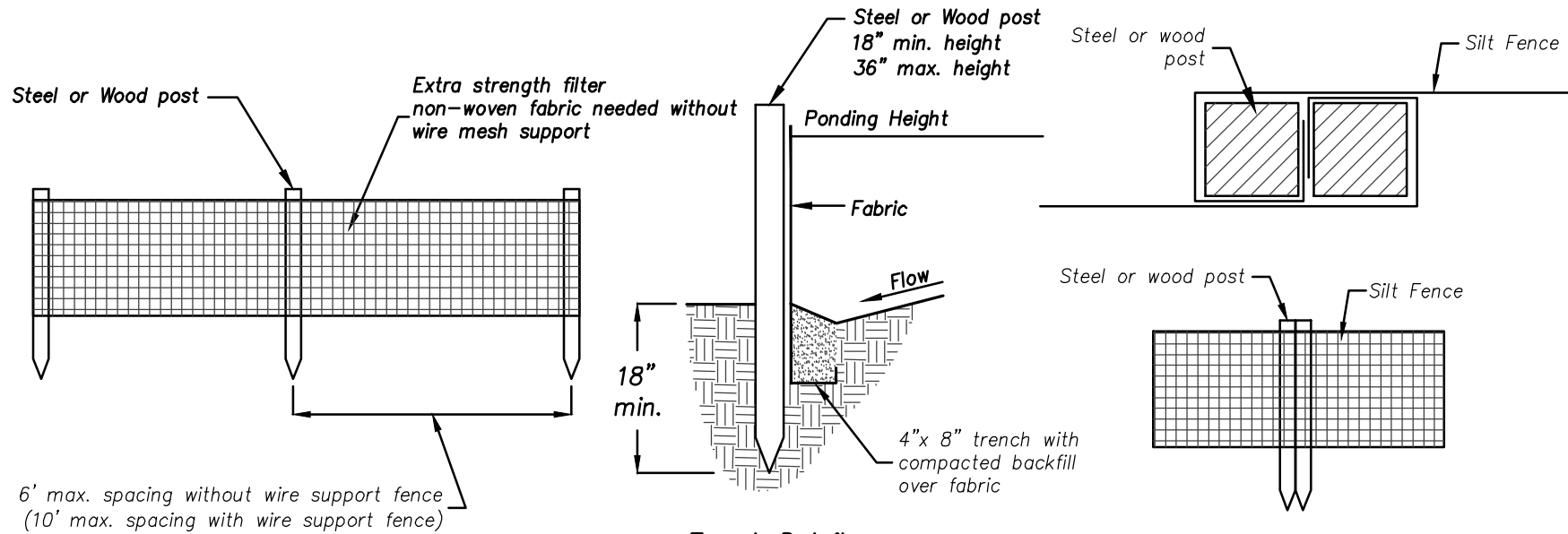
1. Inspection should occur at least once a week and following each ½" or more rain event.
2. If fence fabric tears, starts to decompose, or in anyway becomes ineffective, replace the affected portion immediately.
3. Remove deposited sediment to provide storage for next storm event.
4. When the contributing drainage area has been stabilized, remove the geotextile box and sediment deposits, final grade area, and stabilize immediately.

INSTALLATION NOTES

1. Install fiber mat per manufacturer recommendations.
2. Lay fiber mat firmly in place to cover the inlet grate, cut to extend 1" minimum to 3" maximum from edge of grate.
3. Install pressure disc anchors per manufacturer at recommended anchor locations and use zip ties to fasten to grate.

MAINTENANCE NOTES

1. Inspection should occur at least once a week and following each ½" or more rain event.
2. Broom collected material off filter unit surfaces and away from edges.
3. Remove sediment and debris collected around filter and dispose of in areas of the project which are undergoing grading or remove from site and properly dispose of collected material.
4. Replace filter unit when it becomes clogged with sediment and fails to perform properly.



Trench Detail

SILT FENCE DETAIL
(NOT TO SCALE)

Joining Fences

INSTALLATION NOTES

1. Lay out the location of the fence so that it is parallel to the contour of the slope and at least 10 feet beyond the toe of the slope to provide a sediment storage area. Turn the ends of the fence up slope such that the point of contact between the ground and the bottom of the fence end terminates at a higher elevation than the top of the fence at its lowest point.
2. Excavate an 8-inch deep by 4-inch wide trench along the entire length of the fence. (Installation by plowing is acceptable)
3. Install silt fence with the filter fabric located on the up-slope side of the excavated trench and the support posts on the down-slope side of the trench.
4. Drive the support posts at least 18 inches into the ground, tightly stretching the fabric between the posts as each is driven into the soil. A minimum of 12 inches of the filter fabric should extend into the trench.
5. Lay the lower 4 inches of fabric on the bottom of the trench and extend it toward the up-slope side of the trench.
6. Backfill the trench with soil material and compact it in place.

NOTE:

If the silt fence is being constructed onsite, attach the filter fabric to the support posts and attach wooden lathe to secure the fabric to the posts. Allow for at least 12 inches of fabric below ground level. Complete the silt fence installation, following steps 1 through 6 above.

MAINTENANCE

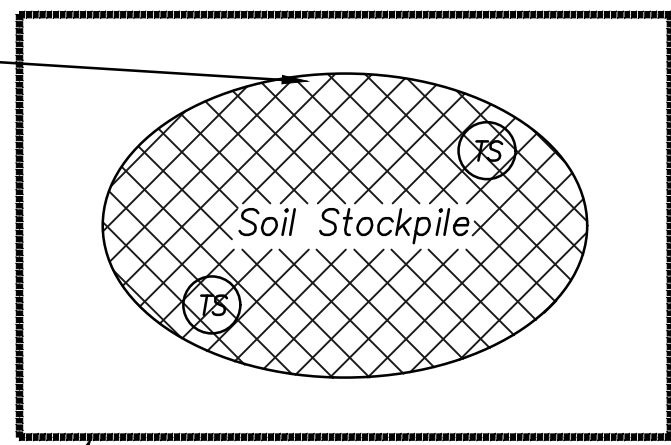
1. Inspect within 24 hours of a half-inch or greater rain event and at least once per week.
2. If fence fabric tears, starts to decompose, or in any way becomes ineffective, replace the affected portion immediately.
3. Remove deposited sediment when it is causing the filter fabric to boulder or when it reaches one-half the height of the fence at its lowest point. When contribution drainage area has been stabilized, remove the fence and sediment deposits, grade the site to blend with surround area, and stabilize.

NOTE:

All repairs should meet specifications as outlined in Silt Fence Installation Notes and Detail.



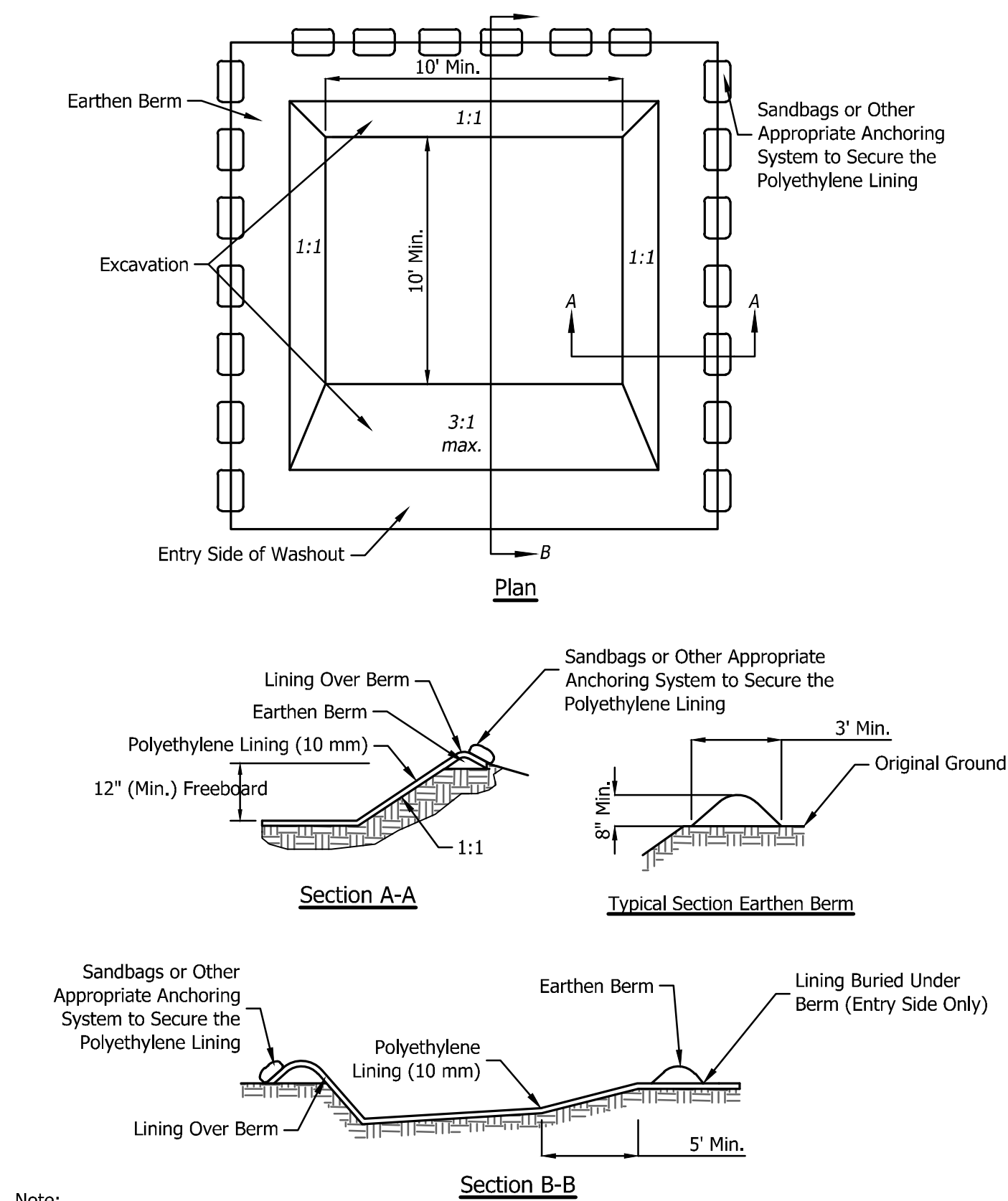
Stabilize Soil Material as specified by "Rule 5" Guidelines



SOIL STOCKPILE DETAIL

(NOT TO SCALE)

No stockpiles, clearing debris / piles, or related materials are to remain on the site at the completion of construction. All materials must be removed "trucked" from the site.



Note:
Contractor Must Install a Secure and Highly Visible "Concrete Washout Area" Sign Adjacent to each Concrete Washout Facility to Inform Concrete Workers of its Location.

CONCRETE WASHOUT STRUCTURE

(NOT TO SCALE)

Installation Notes:

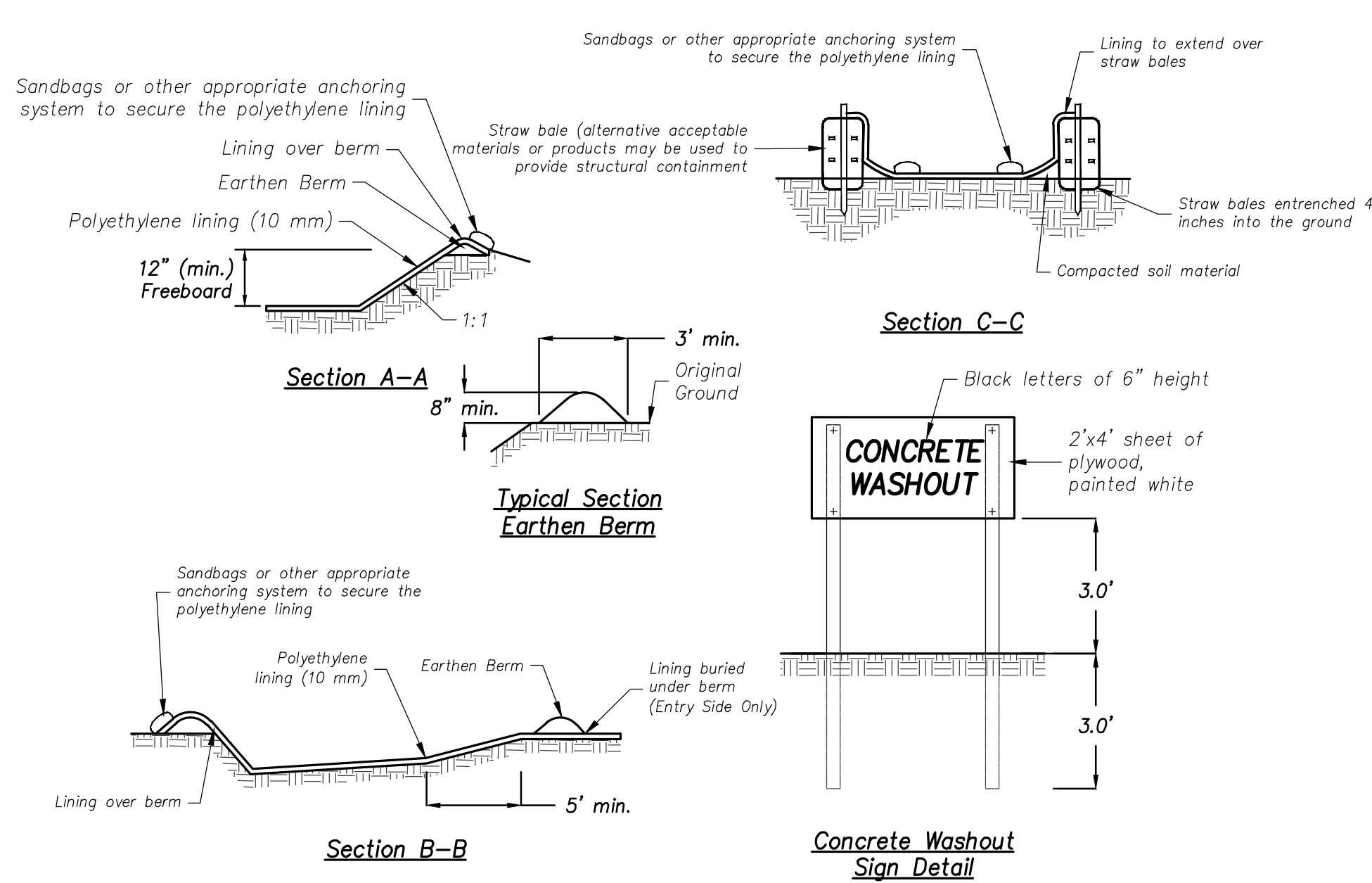
- Dependent upon the type of system, either excavate the pit or install the containment system. For prefabricated containers, locate, and install according to the manufacturer's recommendations.
- A base shall be constructed and prepared that is free of rocks and other debris that may cause tears/punctures in the polyethylene lining.
- Install the polyethylene lining. For excavated systems, the lining should extend over the entire excavation. The lining for bermed systems should be installed over the pooling area with enough material to extend the lining over the berm or containment system. The lining should be secured with pins, staples, or other fasteners.
- Place flags, safety fencing, or equivalent to provide a barrier to construction equipment and other traffic.
- Place a non-collapsing, non-water holding cover over the washout facility prior to a predicted rainfall event to prevent accumulation of water and possible overflow of the system (optional).
- Install signage that identifies concrete washout areas and post signs directing contractors and suppliers to designated locations.
- Where necessary, provide stable ingress and egress or alternative approach pad for concrete washout systems.

Maintenance:

- Inspect daily - Inspect the integrity of the overall structure and containment system where applicable.
- Inspect the system for leaks, spills, and tracking of soil by equipment, and the polyethylene lining for failure, including tears and punctures.
- Once concrete wastes harden, remove and dispose of the material.
- Excess concrete should be removed when the washout system reaches 50 percent of the design capacity. Use of the system should be discontinued until appropriate measures can be initiated to clean the structure. Prefabricated systems should also utilize this criterion, unless the manufacturer has alternate specifications.
- Upon removal of the solids, inspect the structure. Repair the structure as needed or construct a new system.
- Dispose of all the concrete in a legal manner. Reuse the material on site, recycle, or haul the material to an approved construction/demolition landfill site. Recycling of material is encouraged. The waste material can be used for multiple applications including but not limited to roadbeds and building. The availability for recycling should be checked locally.
- The plastic liner should be replaced after every cleaning; the removal of material will usually damage the lining.
- The concrete washout system should be repaired or enlarged as necessary to maintain capacity for concrete waste.
- Concrete washout systems are designed to promote evaporation. However, if the liquids do not evaporate and the system is near capacity it may be necessary to vacuum or remove the liquids and dispose of them in an acceptable method. Disposal may be allowed at the local sanitary sewer authority provided their national pollutant discharge elimination system permits allow for acceptance of this material. Another option would be to utilize a secondary containment system or basin for further dewatering.
- Prefabricated units are often pumped and the company supplying the unit provides this service.
- Inspect construction activities on a regular basis to ensure suppliers, contractors, and others are utilizing designated washout areas. If concrete waste is being disposed of improperly, identify violators and take appropriate action.
- When concrete washout systems are no longer required, the concrete washout system shall be closed. Dispose of all hardened concrete and other materials used to construct the system.
- Holes, depressions and other land disturbances associated with the system should be backfilled, graded, and stabilized.

CONCRETE WASHOUT STRUCTURE NOTES

(NOT TO SCALE)



CONCRETE WASHOUT STRUCTURE

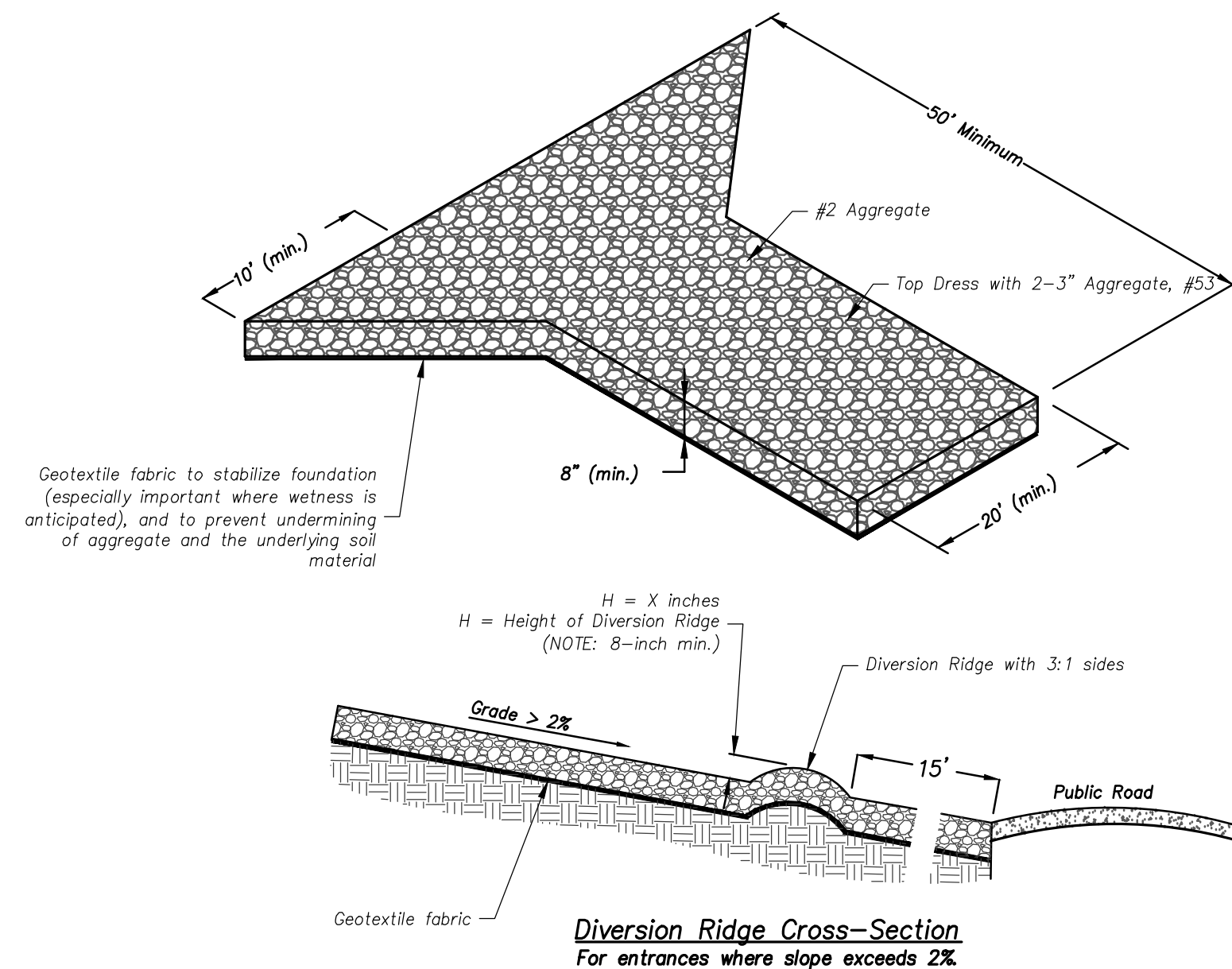
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INSTALLATION NOTES

- Dependent upon the type of system, either excavate the pit or install the containment system. For prefabricated containers, locate, and install according to the manufacturer's recommendations.
- A base shall be constructed and prepared that is free of rocks and other debris that may cause tears/punctures in the polyethylene lining.
- Install the polyethylene lining. For excavated systems, the lining should extend over the entire excavation. The lining for bermed systems should be installed over the pooling area with enough material to extend the lining over the berm or containment system. The lining should be secured with pins, staples, or other fasteners.
- Place flags, safety fencing, or equivalent to provide a barrier to construction equipment and other traffic.
- Place a non-collapsing, non-water holding cover over the washout facility prior to a predicted rainfall event to prevent accumulation of water and possible overflow of the system (optional).
- Install signage that identifies concrete washout areas and post signs directing contractors and suppliers to designated locations.
- Where necessary, provide stable ingress and egress or alternative approach pad for concrete washout systems.

MAINTENANCE

- Inspect daily and after each storm event - Inspect the integrity of the overall structure and containment system where applicable.
- Inspect the system for leaks, spills, and tracking of soil by equipment, and the polyethylene lining for failure, including tears and punctures.
- Once concrete wastes harden, remove and dispose of the material.
- Excess concrete should be removed when the washout system reaches 50 percent of the design capacity. Use of the system should be discontinued until appropriate measures can be initiated to clean the structure. Prefabricated systems should also utilize this criterion, unless the manufacturer has alternate specifications.
- Upon removal of the solids, inspect the structure. Repair the structure as needed or construct a new system.
- Dispose of all the concrete in a legal manner. Reuse the material on site, recycle, or haul the material to an approved construction/demolition landfill site. Recycling of material is encouraged. The waste material can be used for multiple applications including but not limited to roadbeds and building. The availability for recycling should be checked locally.
- The plastic liner should be replaced after every cleaning; the removal of material will usually damage the lining.
- The concrete washout system should be repaired or enlarged as necessary to maintain capacity for concrete waste.
- Concrete washout systems are designed to promote evaporation. However, if the liquids do not evaporate and the system is near capacity it may be necessary to vacuum or remove the liquids and dispose of them in an acceptable method. Disposal may be allowed at the local sanitary sewer authority provided their national pollutant discharge elimination system permits allow for acceptance of this material. Another option would be to utilize a secondary containment system or basin for further dewatering.
- Prefabricated units are often pumped and the company supplying the unit provides this service.
- Inspect construction activities on a regular basis to ensure suppliers, contractors, and others are utilizing designated washout areas. If concrete waste is being disposed of improperly, identify violators and take appropriate action.
- When concrete washout systems are no longer required, the concrete washout system shall be closed. Dispose of all hardened concrete and other materials used to construct the system.
- Holes, depressions and other land disturbances associated with the system should be backfilled, graded, and stabilized.



TEMPORARY CONSTRUCTION ENTRANCE

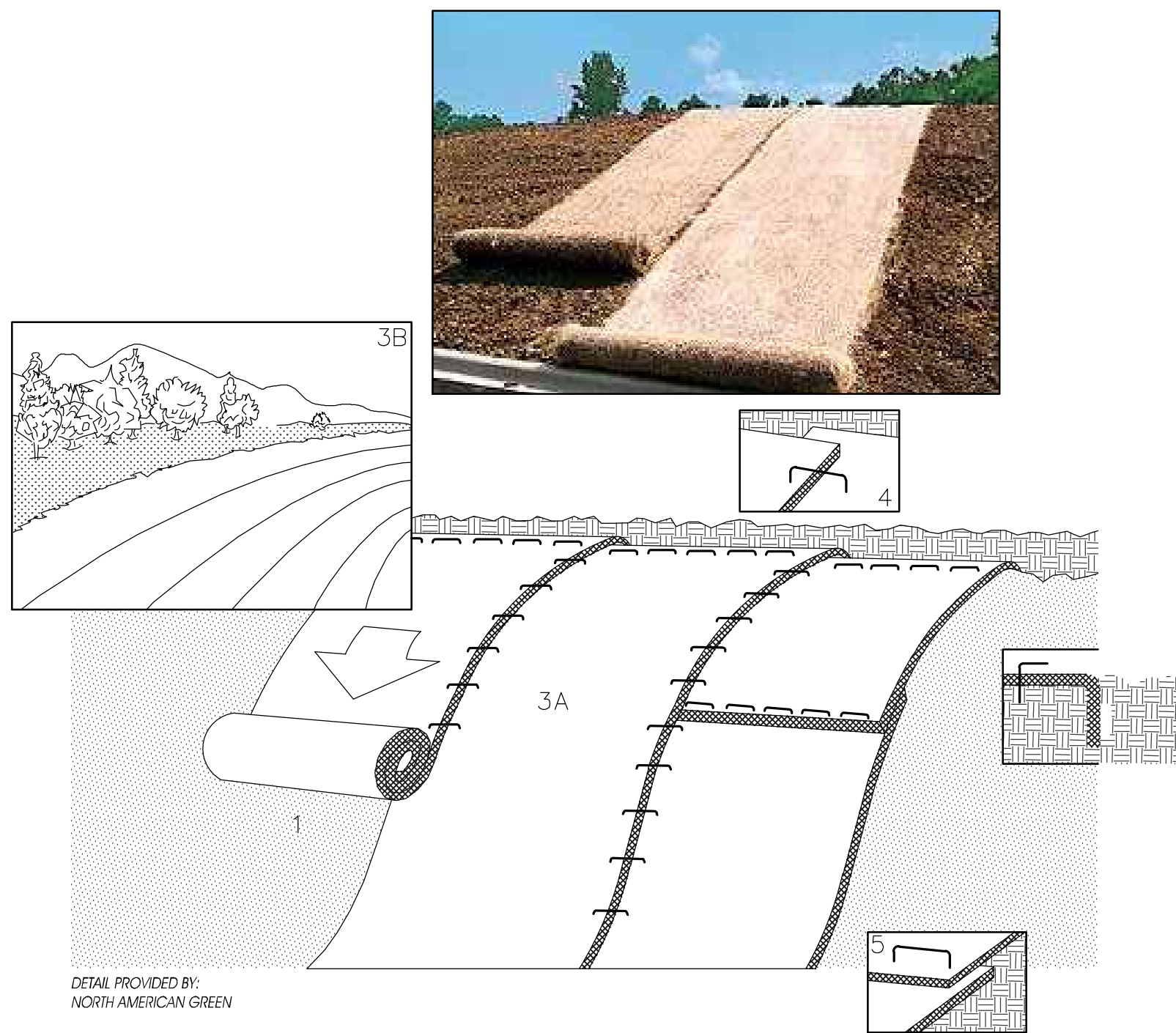
(NOT TO SCALE)

INSTALLATION NOTES

- Remove all vegetation and other objectionable material from the foundation area.
- Grade foundation and crown for positive drainage. If the slope of the construction entrance is toward a public road and exceeds two percent, construct an 8-inch high diversion ridge with a ratio of 3-to-1 side slopes across the foundation area about 15 feet from the entrance to divert runoff away from the road.
- Install a culvert pipe under the pad if needed to maintain proper public road drainage.
- If wet conditions are anticipated, place geotextile fabric on the graded foundation to improve stability.
- Place specified aggregate to the dimensions shown leaving the surface smooth and sloped for drainage.
- Top-dress the first 50 feet adjacent to the public roadway with 2-3 inches of washed #53 aggregate [optional, used primarily where the purpose of the pad is keep soil from adhering to vehicle tires]
- Where possible, divert all stormwater runoff and drainage from the pad to a sediment trap or basin.

MAINTENANCE

- Inspect daily.
- Reshape pad as needed for drainage and runoff control.
- Top dress with clean aggregate as needed.
- Immediately remove mud and sediment tracked or washed onto public roads.
- Flushing should only be used if the water can be conveyed into a sediment trap or basin.



SLOPE STABILIZATION

EROSION CONTROL BLANKETS

(NOT TO SCALE)

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This project does not have planned in-stream activities.

See "Stormwater Pollution Prevention Plan" and "SWPPP Details" for Concrete Washout Location and specifications.

The Project Owner will be responsible for the operation and maintenance of post-construction stormwater measures.

GENERAL CONSTRUCTION ACTIVITY SCHEDULE										
	Construction Activity	2025								
		Mar-May	June	July	August					
1	Temporary Construction Entrance									
2	Silt Fence Installed									
3	Clearing and Stripping Activities									
4	Rough Grading & Stockpile / Contain Topsoil									
5	Sanitary Sewer Construction									
6	Storm Sewer Construction									
7	Inlet / Swale Protection + Temporary Seeding									
8	Pavement Construction									
9	Final Grading / Feature Construction									
10	Permanent Erosion Control Measures									
11	Erosion / Sediment Maintenance									



1. According to FIRM Map Number 18089C0341E with an effective date of 1/18/2012. The project lies in shaded "Zone AE" (Base Flood Elevations determined) and "Zone X" (Areas determined to be outside the 0.2% annual chance floodplain.)

EROSION CONTROL CONTACTS	
<u>Project Owner's Representative:</u>	Brooker Contracting, LLC 1827 Commercial Avenue Lowell, Indiana 46356 219-671-6312
<u>IDEM:</u> Indiana Dept. of Environmental Management	Eric Roberts Stormwater Permit Coordinator 317-233-1864 eroberts@idem.IN.gov
<u>Local Agency:</u> Lake County SWCD	2291 North Main Street Crown Point, Indiana 46307 219-663-7042



NOTE: Existing wetland delineated by National Wetlands Inventory
Map Source: <https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper>

(NOT TO SCALE)



(NOT TO SCALE)

Refer to Soils Report For Soils Data.

NO.	REVISION DESCRIPTION:	BY:	DATE:
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**C & S CONCRETE
CONSTRUCTION, INC.**
7329 McCONNELL AVENUE, LOWELL, INDIANA 46356

SWPPP SPECIFICATIONS

SHEET TITLE	
DRAWN BY: MDR	
DESIGNED BY: MDR	
PM REVIEW: SRF	
QA/QC REVIEW: RTN	
DATE: 12/03/2025	
SEAL:	
SIGNATURE:	
DATE:	
SCALE: AS NOTED	
ACI JOB # 25-0952	
SHEET NO.	

C5.3

O:\PROJECTS\2025\05-0952 BROOKER CONTRACTING-MCCONNELL AVE\20 CIVIL\24 CAD\PLANS\25-0952 SWPPP.DWG SWPPP DETAILS 3 ERIC FISHER 12.3.2025 1:06 PM

TEMPORARY SEEDING

Table 1. Temporary Seeding Specifications

Seed Species 1	Rate per Acre	Planting Depth	Optimum Dates 2
Wheat or Rye	150 lbs.	1 to 1-1/2 inches	Sept. 15 - Oct. 30
Spring Oats	100 lbs.	1 inch	March 1 - April 15
Annual Ryegrass	40 lbs.	1-1/4 inch	March 1 - May 1 Aug. 1 - Sept. 1
German Millet	40 lbs.	1 to 2 inches	May 1 - June 1
Sudangrass	35 lbs.	1 to 2 inches	May 1 - July 30
Buckwheat	60 lbs.	1 to 2 inches	April 15 - June 1
Corn (broadcast)	300 lbs.	1 to 2 inches	May 11 - Aug. 10
Sorghum	35 lbs.	1 to 2 inches	May 1 - July 15

- Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than one year (See Permanent Seeding).
- Seeding done outside the optimum seeding dates increases the chances of seeding failure. Dates may be extended or shortened based on the location of the project site within the state.
 - Mulch alone is an acceptable temporary cover and may be used in lieu of temporary seeding, provided that it is appropriately anchored. A high potential for fertilizer, seed, and mulch to wash exists on steep banks, cuts, and in channels and areas of concentrated flow.
 - Test soil to determine pH and nutrient levels.
 - Apply soil amendments as recommended by the soil test. If testing is not done, apply 400 to 600 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
 - Work the soil amendments into the upper two to four inches of the soil with a disk or rake operated across the slope.
 - Select a seed species or an appropriate seed mixture and application rate from Table 1.
 - Apply seed uniformly with a drill or cultipacker seeder or by broadcasting. Plant or cover seed to the depth shown in Table 1.
 - If drilling or broadcasting the seed, ensure good seed-to-soil contact by firming the seedbed with a roller or cultipacker after completing seeding operations. Daily seeding when the soil is moist is usually most effective.
 - If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.
 - Apply mulch (See Mulching and Compost Mulching Requirements Below) and anchor it in place.
 - Inspect within 24 hours of each rain event and at least once every seven calendar days.
 - Check for erosion or movement of mulch and repair immediately.
 - Monitor for erosion damage and adequate cover (80 percent density); reseed, fertilize, and apply mulch where necessary.
 - If nitrogen deficiency is apparent, top-dress fall seeded wheat or rye seeding with 50 pounds per acre of nitrogen in February or March.

SOD

Installation

Sod should not be installed during hot weather, on dry soil, frozen soil, compacted clay, loose sand or gravelly substrate soils, aggregate, or pesticide treated soil. The ideal time to lay sod is May 1 to June 1 or September 1 to September 30, although it can be installed as early as March 15 if available or June 1 to September 1 if irrigated.

Site Preparation

- Apply topsoil if existing soil conditions are unsuitable for establishing vegetation.
- Grade the site to achieve positive drainage and create a smooth, firm soil surface.
- Where applicable, use a chisel plow, disk, harrow, or rake to break up compacted soils and create a favorable rooting depth of six to eight inches.

Sod Bed Preparation

- Test soil to determine pH and nutrient levels.
- If soil pH is too acidic for the grass sod to be installed, apply lime according to soil test results or at the rate recommended by the sod supplier.
- Apply fertilizer as recommended by the soil test. If testing was not done, apply 400 to 600 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
- Work the soil amendments into the upper two to four inches of soil with a disk or rake operated across the slope.
- Rake or harrow the area to achieve a smooth final grade and then roll or cultipack the soil surface to create a firm surface on which to lay the sod.

Laying the Sod

- Install sod within thirty-six hours of its cutting.
- Store the sod in a shaded location during installation.
- Immediately before laying the sod, rake the soil surface to break any crust. (If the weather is hot, lightly irrigate the soil surface prior to laying the sod.)
- Lay sod strips in a brick-like pattern.
- Butt all joints tightly against each other (do not stretch or overlap them), using a knife or mason's trowel to trim and fit sod into irregularly shaped areas.
- Roll the sod lightly after installation to ensure firm contact between the sod and soil.
- Irrigate newly sodded areas until the underlying soil is wet to a depth of four inches, and then keep moist until the grass takes root.

Slope Application

- Install sod strips with the longest dimension perpendicular to the slope.
- Where slopes exceed a ratio of 3:1, staple or stake each strip at the corners and in the middle.

Channel Application (Sodding provides quicker protection than seeding and may reduce the risk of early washout.)

- Excavate the channel, allowing for the full thickness of the sod.
- Lay sod strips with the longest dimension perpendicular to channel flow.
- Staple or stake each strip of sod at the corners and in the middle.
- Staple jute or biodegradable polypropylene netting over the sodded area to minimize the potential for washout during establishment.

Maintenance

- Inspect within 24 hours of each rain event and at least once every seven calendar days until sod is well rooted.
- Keep sod moist until fully rooted.
- After sod is well-rooted (two to three weeks), maintain a plant height of two to three inches.
- Time mowing to avoid ruts in turf
- Fertilize turf areas annually. Apply fertilizer in a split application. For coolseason grasses, apply one-half of the fertilizer in late spring and one-half in early fall. For warm-season grasses, apply one-third in early spring, one-third in late spring and one-third in mid-summer.

PERMANENT SEEDING

Site Preparation

- Grade the site to achieve positive drainage.
- Add topsoil or compost mulch to achieve needed depth for establishment of vegetation. (Compost material may be added to improve soil moisture holding capacity, soil friability, and nutrient availability.)

Seedbed Preparation

- Test soil to determine pH and nutrient levels.
- Apply soil amendments as recommended by the soil test and work into the upper two to four inches of soil. If testing is not done, apply 400 to 600 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
- Till the soil to obtain a uniform seedbed. Use a disk or rake, operated across the slope, to work the soil amendments into the upper two to four inches of the soil.

Seeding

- Optimum seeding dates are March 1 to May 10 and August 10 to September 30. Permanent seeding done between May 10 and August 10 may need to be irrigated. Seeding outside or beyond optimum seeding dates is still possible with the understanding that reseeding or overseeding may be required if adequate surface cover is not achieved. Reseeding or overseeding can be easily accomplished if the soil surface remains well protected with mulch.
- Select a seeding mixture and rate from Table 1 Permanent Seeding Recommendations. Select seed mixture based on site conditions, soil pH, intended land use, and expected level of maintenance.
- Apply seed uniformly with a drill or cultipacker seeder or by broadcasting. Plant or cover the seed to a depth of one-fourth to one-half inch. If drilling or broadcasting the seed, ensure good seed-to-soil contact by firming the seedbed with a roller or cultipacker after completing seeding operations. (If seeding is done with a hydroseeder fertilizer and mulch can be applied with the seed in a slurry mixture.)
- Mulch all seeded areas and use appropriate methods to anchor the mulch in place. Consider using erosion control blankets on sloping areas and conveyance channels.

Maintenance

- Inspect within 24 hours of each rain event and at least once every seven calendar days until the vegetation is successfully established.
- Characteristics of a successful stand include vigorous dark green or bluishgreen seedlings with a uniform vegetative cover density of 90 percent or more.
- Check for erosion or movement of mulch.
- Repair damaged, bare, gullied, or sparsely vegetated areas and then fertilize, reseed, and apply and anchor mulch.
- If plant cover is sparse or patchy, evaluate the plant materials chosen, soil fertility, moisture condition, and mulch application; repair affected areas either by overseeding or preparing a new seedbed and reseeding. Apply and anchor mulch on the newly seeded areas.
- If vegetation fails to grow, consider soil testing to determine soil pH or nutrient deficiency problems. (Contact your soil and water conservation district or cooperative extension office for assistance.)
- If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.
- Add fertilizer the following growing season. Fertilize according to soil test recommendations.
- Fertilize turf areas annually. Apply fertilizer in a split application. For cool-season grasses, apply one-half of the fertilizer in late spring and one-half in early fall. For warm-season grasses, apply one-third in early spring, one-third in late spring, and the remaining one-third in middle summer.

Table 1. Permanent Seeding Recommendations

This table provides several seed mixture options. Additional seed mixtures are available commercially. When selecting a mixture, consider intended land use and site conditions, including soil properties (e.g., soil pH and drainage), slope aspect, and the tolerance of each species to shade and drought.

Open Low-Maintenance Areas
(Remaining idle more than six months)

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white clover 1	70 lbs. 2lbs.	5.6 to 7.0
2. Perennial ryegrass - tall fescue 2	70 lbs. 50 lbs.	5.6 to 7.0
3. Tall fescue 2 - white clover 1	70 lbs. 2 lbs.	5.5 to 7.5

Steep Banks and Cuts, Low-Maintenance Areas (not mowed)

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Smooth brome grass - red clover 1	35 lbs. 20 lbs.	5.5 to 7.0
2. Tall fescue 2 - white clover 1	50 lbs. 2 lbs.	5.5 to 7.5
3. Tall fescue 2 - red clover 1	50 lbs. 20 lbs.	5.5 to 7.5
4. Orchard grass - red clover 1 - white clover 1	30 lbs. 20 lbs. 2 lbs.	5.6 to 7.0
5. Crownvetch 1 - tall fescue 2	12 lbs. 30 lbs.	5.6 to 7.0

Lawns and High-Maintenance Areas

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Bluegrass	140 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf type)	60 lbs. 90 lbs.	5.6 to 7.0
3. Tall fescue (turf type) 2 - bluegrass	170 lbs. 30 lbs.	5.6 to 7.5

Channels and Areas of Concentrated Flow

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white 1	150 lbs. 2 lbs.	5.5 to 7.0
2. Kentucky bluegrass - smooth bromegrass - switchgrass - timothy - perennial ryegrass - white clover	20 lbs. 10 lbs. 3 lbs. 4 lbs. 10 lbs. 2 lbs.	5.6 to 7.0
3. Tall fescue 1 - white clover	150 lbs. 2 lbs.	5.5 to 7.5
4. Tall fescue 2 - perennial ryegrass - Kentucky bluegrass1	150 lbs. 20 lbs. 20 lbs.	5.5 to 7.5

- For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded (see Dormant and Frost Seeding on page 41); and (c) if legumes are fall-seeded, do so in early fall.
- Tall fescue provides little cover for, and may be toxic to some species of wildlife. The Indiana Department of Natural Resources recognizes the need for additional research on alternatives such as buffalograss, orchardgrass, smooth bromegrass, and switchgrass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability, and drought resistance.

Notes

- An oat or wheat companion or nurse crop may be used with any of the above permanent seeding mixtures, at the following rates:
 - Spring oats - one-fourth to three-fourths bushel per acre
 - Wheat - no more than one-half bushel per acre
- A high potential for fertilizer, seed, and mulch to wash exists on steep banks, cuts, and in channels and areas of concentrated flow.

Slope Stabilization Mix
Available from Cardno Native Plant Nursery
128 Sunset Drive
Walkerton, IN 46574
574-586-2412
OR EQAL

MULCHING

Table 1. Mulch Specifications

Material 1	Rate per Acre	Comments
Straw or Hay	2 tons	Should be dry, free of undesirable seeds. Spread by hand or machine. Must be crimped or anchored (See Table 2).
Wood fiber or cellulose1	1 ton	Apply with a hydraulic mulch machine and use with tacking agent.

Mulching is not recommended in concentrated flows. Consider erosion control blankets or other stabilization methods.

Coverage

The mulch should have a uniform density of at least 75 percent over the soil surface.

Anchoring

Table 2. Mulch Anchoring Methods

Anchoring Method	How to Apply
Mulch anchoring tool or farm disk (dull, serrated, and blades set straight)	Crimp or punch the straw or hay two to four inches into the soil. Operate machinery on the contour and the slope.
Cleating with dozer tracks	Operate dozer up and down slope to prevent formation of rills by dozer cleats.
Wood hydromulch fibers	Apply according to manufacturer's recommendations.
Synthetic tackifiers, binders, or soil stabilizers	Apply according to manufacturer's recommendations.
Netting (synthetic or biodegradable material)	Install netting immediately after applying mulch. Anchor netting with staples. Edges of netting strips should overlap with each up-slope strip overlapping four to six inches over the adjacent down-slope strip. Best suited to slope applications. In most instances, installation details are site specific, so manufacturer's recommendations should be followed.

All forms of mulch must be anchored to prevent displacement by wind and/or water.

Application

- Apply mulch at the recommended rate shown in Table 1.
- Spread the mulch material uniformly by hand, hayfork, mulch blower, or hydraulic mulch machine. After spreading, no more than 25 percent of the ground should be visible.
- Anchor straw or hay mulch immediately after application. The mulch can be anchored using one of the methods listed below:
 - Crimp with a mulch anchoring tool, a weighted farm disk with dull serrated blades set straight, or track cleats of a bulldozer.
 - Apply hydraulic mulch with short cellulose fibers.
 - Apply a liquid tackifier, or
 - Cover with netting secured by staples.

Maintenance

- Inspect within 24 hours of each rain event and at least once a week.
- Check for erosion or movement of mulch; repair damaged areas, reseed, apply new mulch and anchor the mulch in place.
- Continue inspections until vegetation is firmly established.
- If erosion is severe or recurring, use erosion control blankets or other more substantial stabilization methods to protect the area.

(5) Compost Mulching

Compost Specifications

- Feedstocks may include but are not limited to well-composted vegetable matter, leaves, yard trimmings, food scraps, composted manures, paper fiber, wood bark, Class A biosolids (as defined in Title 40 of the Code of Federal Regulations at 40 CFR Part 503), or any combination thereof.
- Compost shall be produced using an aerobic composting process meeting 40 CFR Part 503 regulations, including time and temperature data indicating effective weed seed, pathogen, and insect larvae kill.
- Compost shall be well decomposed, stable, and weed free.
- Refuse free (less than one percent by weight).
- Free of any contaminants and materials toxic to plant growth.
- Inert materials not to exceed one percent by dry weight pH of 5.5 to 8.0.
- Carbon-nitrogen ratio not to exceed 100.
- Moisture content not to exceed 45 percent by dry weight.
- Variable particle size with maximum dimensions of three inches in length, one-half inch in width and one-half inch in depth.

Table 1. Compost Particle Size

Percent Passing Sieve Size			
2-Inch Sieve	1-Inch Sieve	3/4-Inch Sieve > 1/4-Inch Sieve	
100%	99%	90%	25%

Bonding Agents (optional)

Tackifiers, flocculants, or microbial additives may be used to remove sediment and/or additional pollutants from storm water runoff. (All additives combined with compost materials should be tested for physical results at a certified erosion and sediment control laboratory and biologically tested for elevated beneficial microorganisms at a United States Compost Council, Seal of Testing Assurance, approved testing laboratory.)

Soil Material (optional)

Five percent to ten percent sandy loam (as classified by the U.S. Department of Agriculture soil classification system).

Cover Density

Ninety percent or greater over the soil surface.

Anchoring Method

- Moisten compost/mulch blanket for a minimum of 60 days.
- Erosion control netting (optional).

Cover Thickness

Table 2. Compost Blanket Thickness

Slope	Thickness of Compost Blanket	Thickness of Compost Blanket with Erosion Control Netting
< 25%	< 4:1	1 to 2 inches
25% to 50%	4:1 to 2:1	1 to 2 inches
> 50%	> 2:1	2 to 3 inches

Application

- Remove existing vegetation, large soil clods, rocks, stumps, large roots, and debris in areas where compost mulch is to be applied and dispose of in designated areas.
- Scarify sloping areas.
- Aerate areas to be covered with compost/mulch blanket. (Proper aeration will require a minimum of two passes oriented in opposite directions.)
- Broadcast a minimum of one pound of nitrogen (N), one-half pound of phosphorous (P205), and one-half pound of potash (K20) per 1,000 square feet or 300 to 400 pounds per acre of 12-12-12 analysis fertilizer, or equivalent, per acre.
- Apply compost mulch blanket with a pneumatic blower or per manufacturer's directions.
 - Apply within three days of completing aeration operations.
 - Overlap top of slope shoulder by five to ten feet.
 - Seed may be applied at time of installation. (Seed must be evenly blended into the compost if applied with a pneumatic blower or applied with a calibrated seeder attachment prior to installation of the compost blanket.)
- Water compost mulch blanket for a period of 60 days following application. (On steeper slopes, it may be necessary to install erosion control netting over the compost blanket.)
 - Mist blanket for first seven days and then every three days throughout the remainder of the 60-day period.
 - Maintain a constant moisture content of 40 percent to 60 percent.

Maintenance

- Inspect within 24 hours of a rain event and at least once a week.
- Repair eroded areas, and reseed, if applicable.
- Monitor vegetation and apply appropriate soil amendments (if needed) per a soil test.

DORMANT & FROST SEEDING

CONTRACTOR TO DETERMINE THE APPROPRIATE SEEDING METHOD BASED ON THE TIME OF YEAR.

Purpose:

- To provide early germination and soil stabilization in the spring.
- To reduce sediment-laden stormwater runoff from being transported to downstream areas.
- To improve visual aesthetics of construction area.
- To repair or enhance previous seeding.

Materials Required:

- Soil amendments based upon analysis of soil by a soil testing service. (fertilizer, etc.)
- Seed (information follows)
- Mulch (straw, hay, wood fiber, etc.) for protection of seedbed, moisture retention and encouragement of plant growth. mulch must be anchored to prevent dispersal by wind or water. may be covered with manufactured erosion control blankets.

Seed Specifications:

Note that seeding done outside of the optimum seeding dates increases the chances of seeding failure. dates may be shortened or extended depending on the location of the site within the State of Indiana. Mulch alone is an acceptable temporary cover and may be used in lieu of temporary seeding, providing that it is appropriately anchored. perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than one year (see permanent seeding).

Temporary Dormant or Frost Seeding

Wheat or Rye: 150 pounds per acre
Spring Oats: 150 pounds per acre
Annual Rye Grass: 60 pounds per acre

Permanent Dormant or Frost Seeding

Open low-maintenance areas (remaining idle more than 6 months):

Perennial ryegrass & white clover: ryegrass 75 pounds per acre + 3 pounds of clover per acre, optimum soil pH 5.6 to 7.0
Perennial ryegrass & tall fescue: ryegrass 45 pounds per acre + 45 pounds of fescue per acre, optimum soil pH 5.6 to 7.0

Tall fescue & white clover: fescue 75 pounds per acre + 3 pounds of white clover per acre, optimum soil pH 5.5 to 7.5
Kentucky bluegrass, smooth bromegrass, switchgrass, timothy, perennial ryegrass, & white clover: bluegrass 30 pounds per acre + 15 pounds of bromegrass per acre + 5 pounds of switchgrass per acre + 5 pounds of timothy per acre + 15 pounds of ryegrass per acre + 3 pounds of white clover per acre, optimum soil pH 5.5 to 7.5

Steep banks and cuts (low-maintenance areas, not mowed):
Smooth bromegrass & red clover: brome 50 pounds per acre + 30 pounds of red clover per acre, optimum soil pH 5.5 to 7.0
Tall fescue & white clover: fescue 75 pounds per acre + 30 pounds of white clover per acre, optimum soil pH 5.5 to 7.5

Tall fescue & red clover: fescue 75 pounds per acre + 30 pounds of red clover per acre, optimum soil pH 5.5 to 7.5
Orchard grass, red clover & white clover: orchard grass 45 pounds per acre + 30 pounds of red clover per acre + 3 pounds of white clover per acre, optimum soil pH 5.6 to 7.0

Lawns and high-maintenance areas:
Bluegrass: bluegrass 210 pounds per acre, optimum pH 5.5 to 7.0

Perennial ryegrass & bluegrass: 90 pounds of ryegrass per acre & 135 pounds of bluegrass per acre, optimum pH 5.6 to 7.0
Tall fescue (turf type) & bluegrass: fescue 250 pounds per acre + 45 pounds of bluegrass per acre, optimum soil pH 5.6 to 7.5

Channels and areas of concentrated flow:
Perennial ryegrass & white clover: ryegrass 225 pounds per acre + 3 pounds of white clover per acre, optimum soil pH 5.5 to 7.0

Kentucky bluegrass, smooth bromegrass, switchgrass, timothy, perennial ryegrass, & white clover: bluegrass 30 pounds per acre + 15 pounds of bromegrass per acre + 5 pounds of switchgrass per acre + 6 pounds of timothy per acre + 15 pounds of ryegrass per acre + 3 pounds of white clover per acre, optimum soil pH 5.5 to 7.5
Tall fescue & white clover: fescue 225 pounds per acre + 3 pounds of clover per acre, optimum soil pH 5.5 to 7.5
Tall fescue, perennial rye grass, & Kentucky bluegrass: fescue 225 pounds per acre + 30 pounds of ryegrass per acre + 30 pounds of bluegrass per acre, optimum soil pH 5.5 to 7.5

Note: for best results:

- Legume seed should be inoculated
- Seeding mixtures containing legumes should be spring-seeded although, the grass may be fall-seeded and the legume frost seeded
- If legumes are fall-seeded, do so in early fall
- If using mixtures other than those listed above, increase seeding rates by 50 percent over the conventional seeding rates.

Site Preparation:

- Grade the site to achieve positive drainage.
- Add topsoil to achieve needed depth for establishment of vegetation.

Dormant Seeding:

- Test soil to determine pH and nutrient levels.
- Broadcast soil amendments as recommended by soil test and work into the upper 2 to 4 inches of soil. If testing is not done, apply 200 to 300 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
- Apply anchored mulch immediately after completion of grading and addition of soil amendments.
- Select appropriate seed species (see seed specifications above). Broadcast the seed on top of the mulch and/or into existing ground cover at rates shown. Areas are to be seeded when soil temperatures are below 50 degrees but the soil is not frozen.

Frost Seeding:

- Test soil to determine pH and nutrient levels.
- Broadcast soil amendments as recommended by a soil test and work into the upper 2 to 4 inches of soil before it freezes. If testing was not done, apply 200 to 300 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
- Select appropriate seed species or mixture (see seed specifications above). Broadcast the seed on the seedbed when the soil is frozen. do not work the seed into the soil.

Maintenance:

- Inspect at least once every a week (minimum) and within one business day of each 0.50 inch or greater storm event.
- Check for erosion or movement of mulch.
- Check for inadequate cover (less than 80 percent density over the soil surface); reseed and mulch in mid to late April if necessary. For best results, reseed within the recommended dates shown under temporary and permanent seeding).
- Apply 200 to 300 pounds per acre of 12-12-12 analysis fertilizer, or equivalent, between April 15 and May 10 or during periods of vigorous growth.
- Fertilize turf areas annually. Apply fertilizer in a split application. For cool-season grasses, apply 1/2 in late Spring and 1/2 in early Fall. For warm-season grasses, Apply 1/3 in early Spring, 1/3 in late Spring, and the remaining 1/3 in middle Summer.

Note:

Required density of vegetative cover = 80 percent or greater over the soil surface.

NO. REVISION DESCRIPTION: BY: DATE:

PROJECT:

SHEET TITLE:

DRAWN BY:

MDR

DESIGNED BY:

MDR

PM REVIEW:

SRF

QA/QC REVIEW:

RTN

DATE:

12/03/2025

SEAL:

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SCALE:

AS NOTED

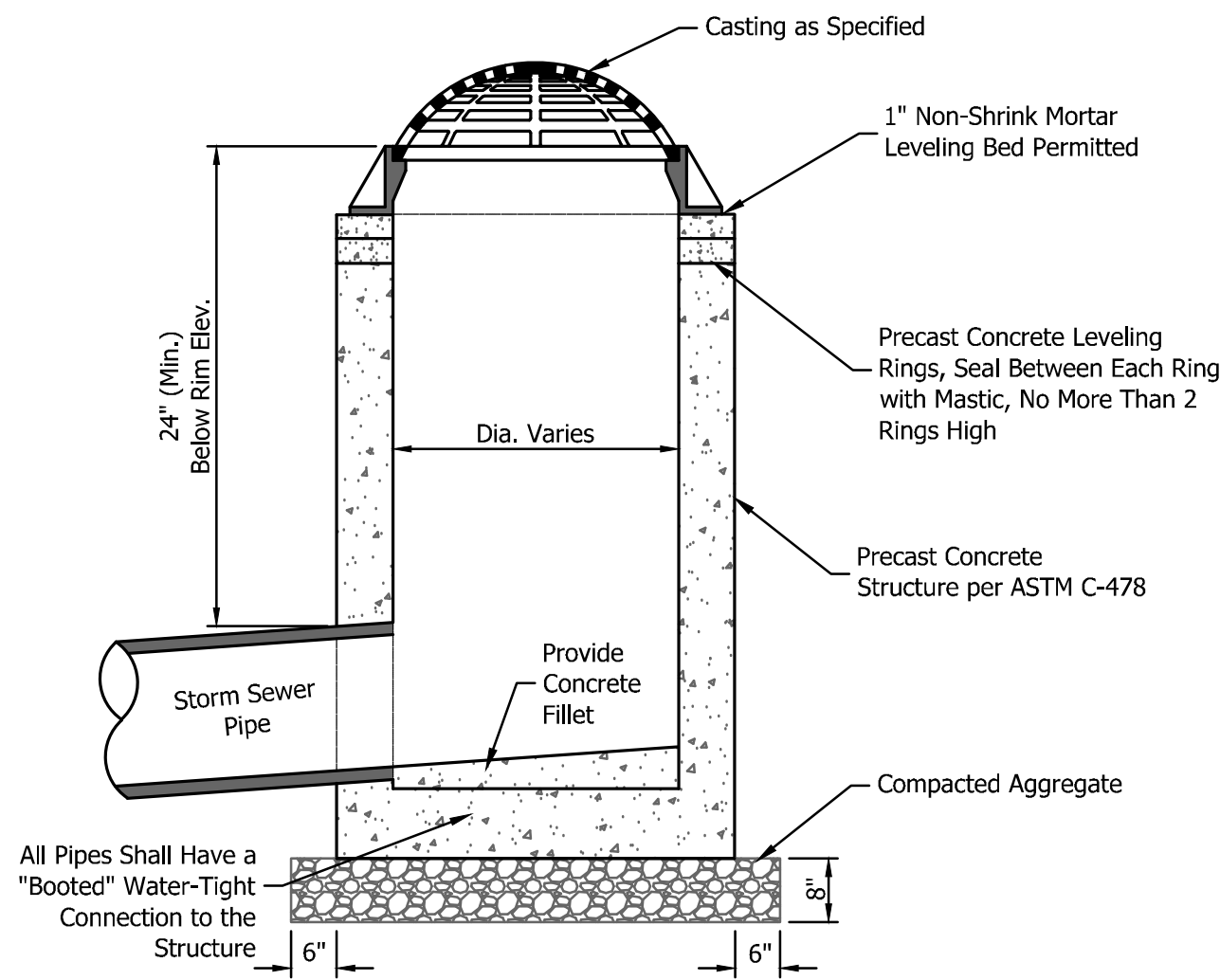
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25-0952

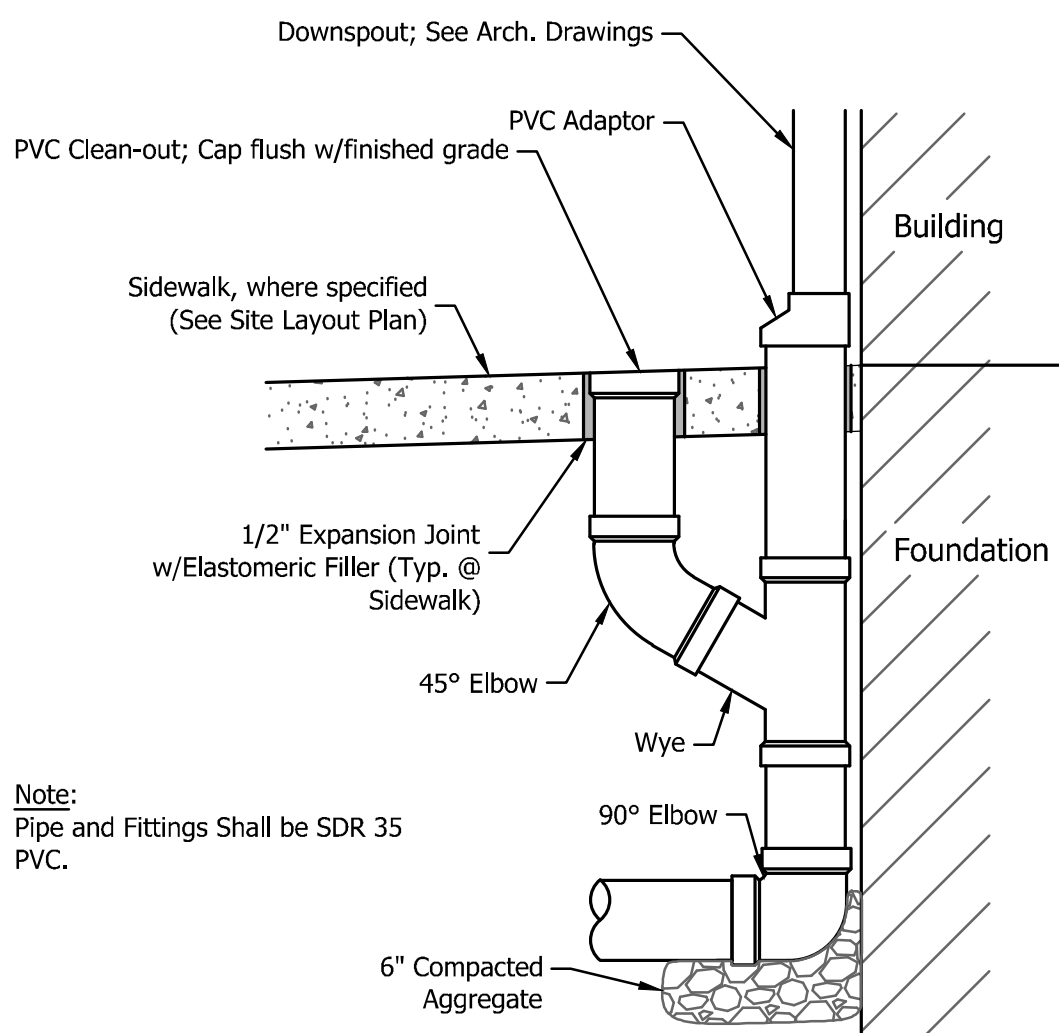
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C5.4

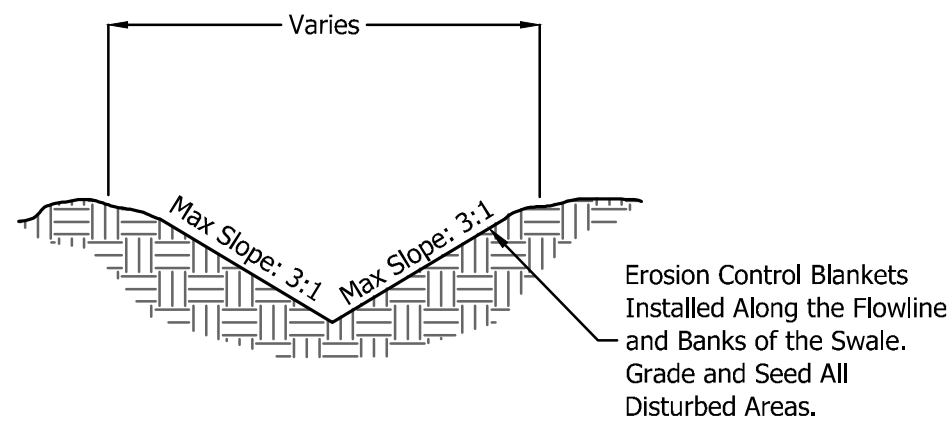
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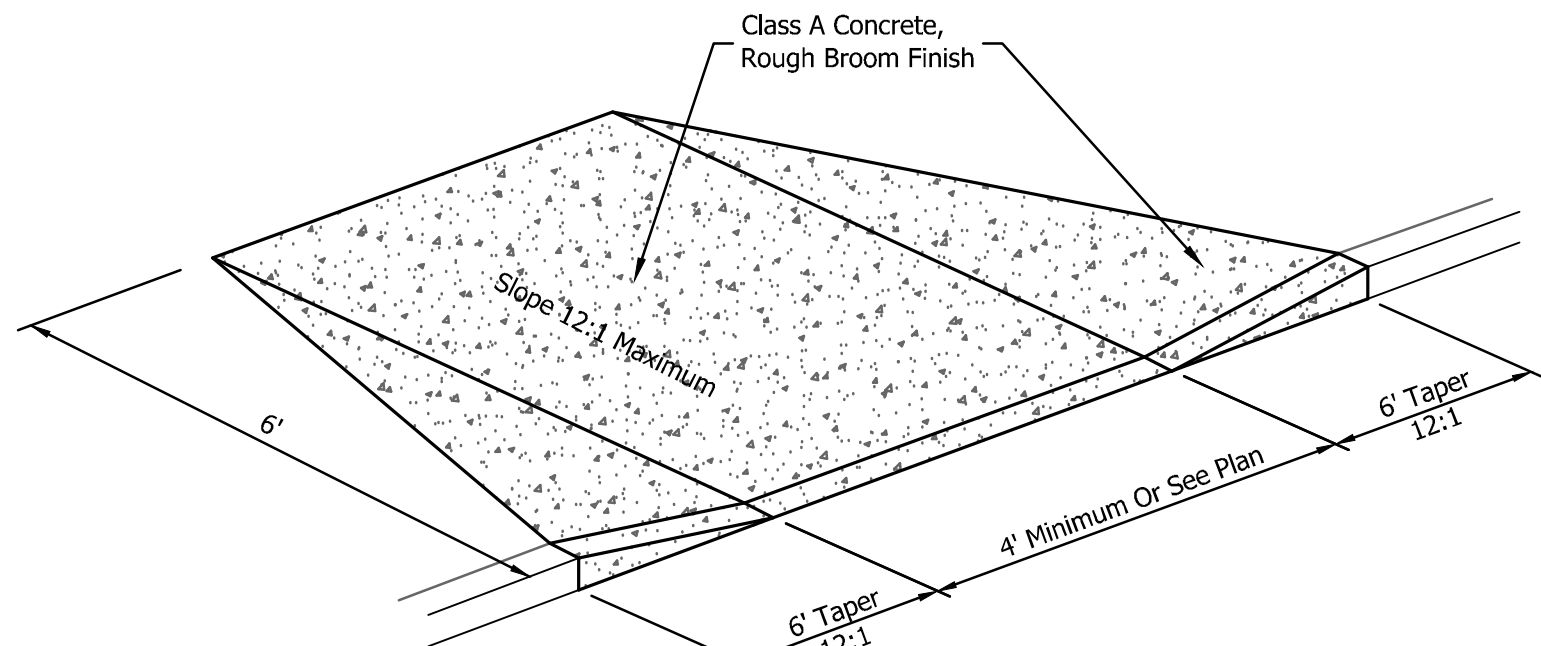
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(NOT TO SCALE)



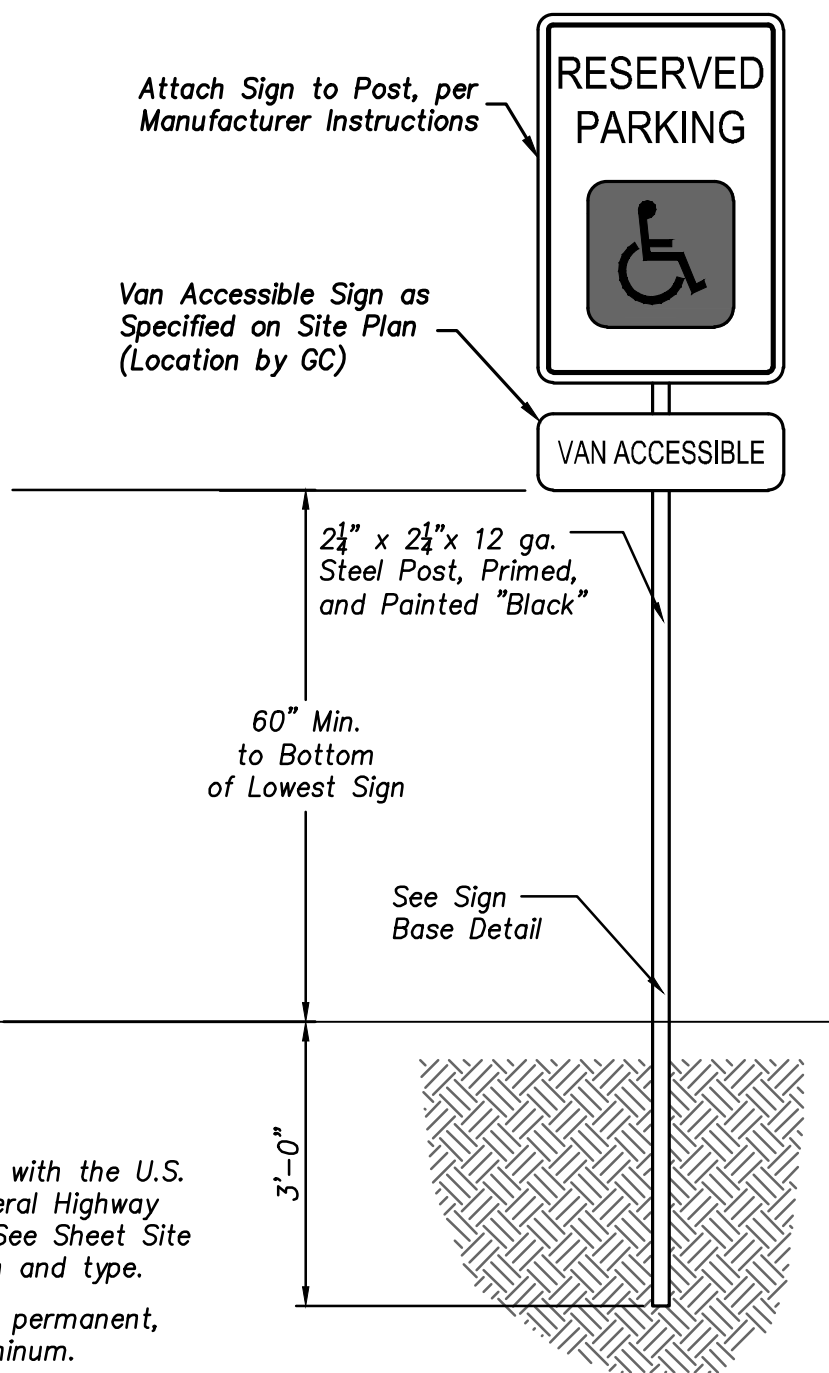
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TYPICAL DRAINAGE SWALE
(NOT TO SCALE)

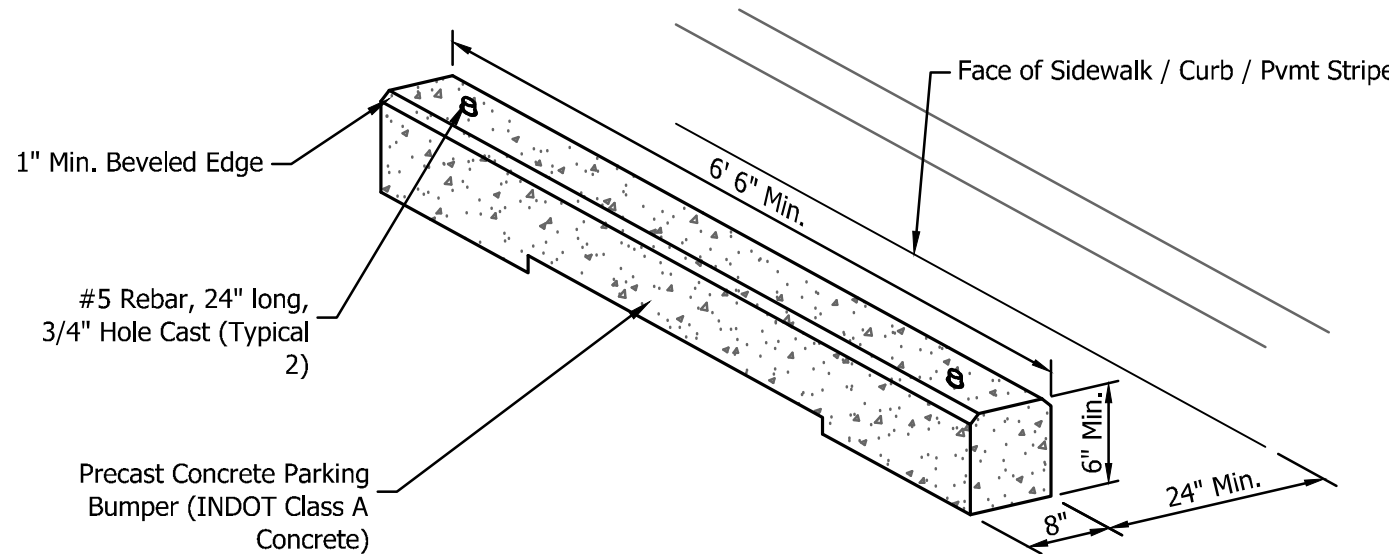


SIDEWALK CURB RAMP
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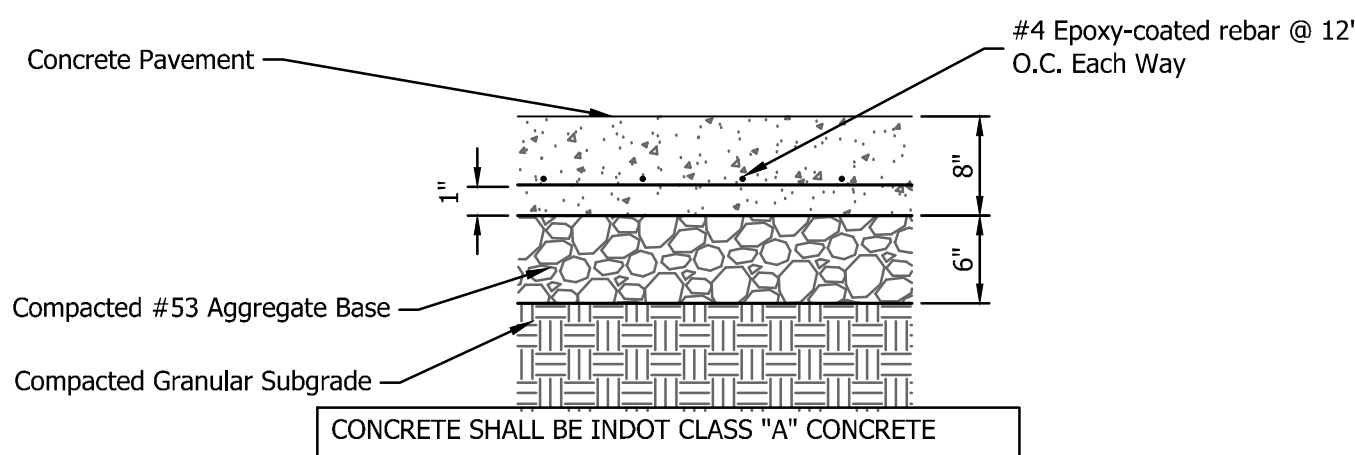


- Notes:
- Sign Types shall be in accordance with the U.S. Department of Transportation Federal Highway MUTCD Manual on Traffic Signs. See Sheet Site Development Plan for sign location and type.
 - Signs shall be constructed from a permanent, reflectorized, rust free, sheet aluminum.
 - Each ADA parking space shall be identified with the International Symbol of Accessibility.

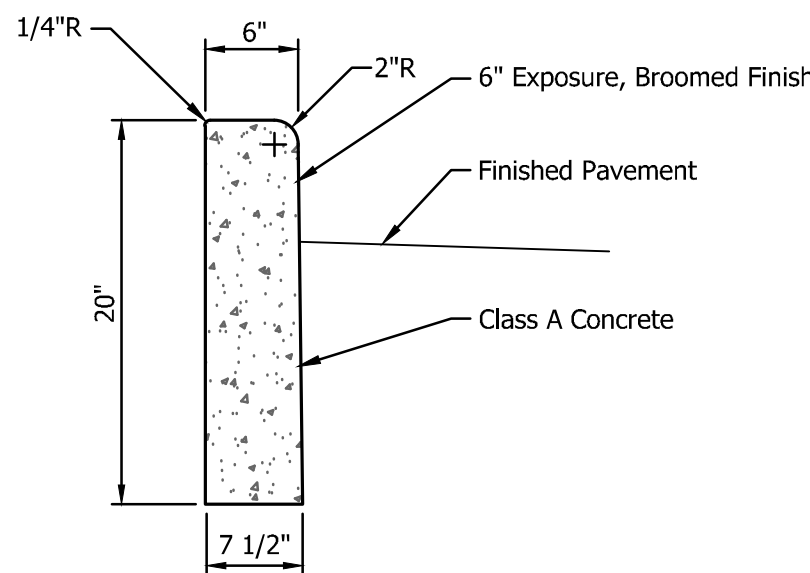
ADA PARKING SIGN - POST MOUNT
(NOT TO SCALE)



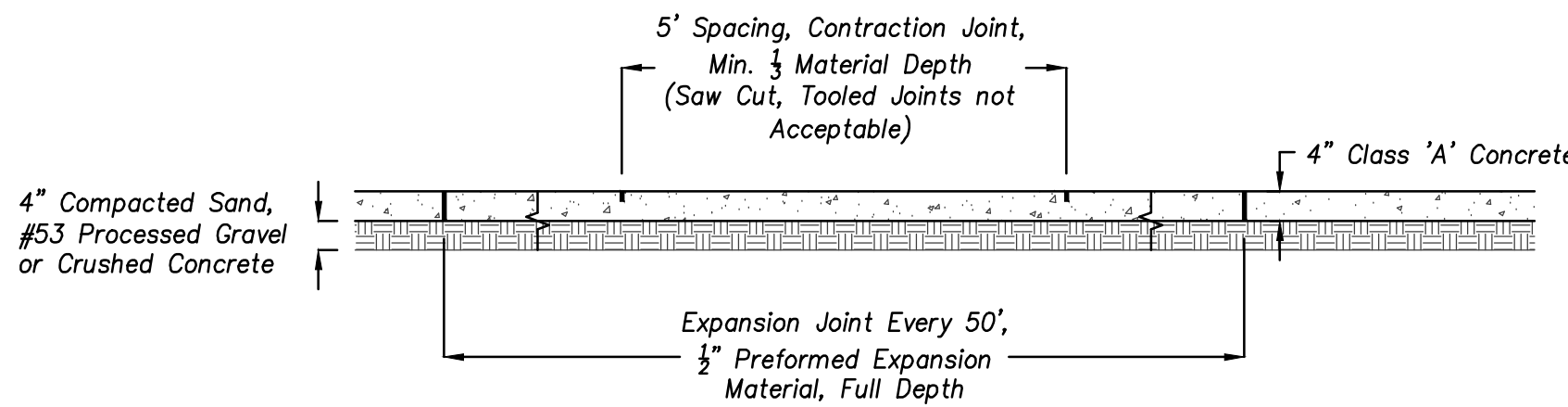
CONCRETE PARKING BUMPER
(NOT TO SCALE)



HEAVY-DUTY CONCRETE PAVEMENT, REINFORCED
(NOT TO SCALE)

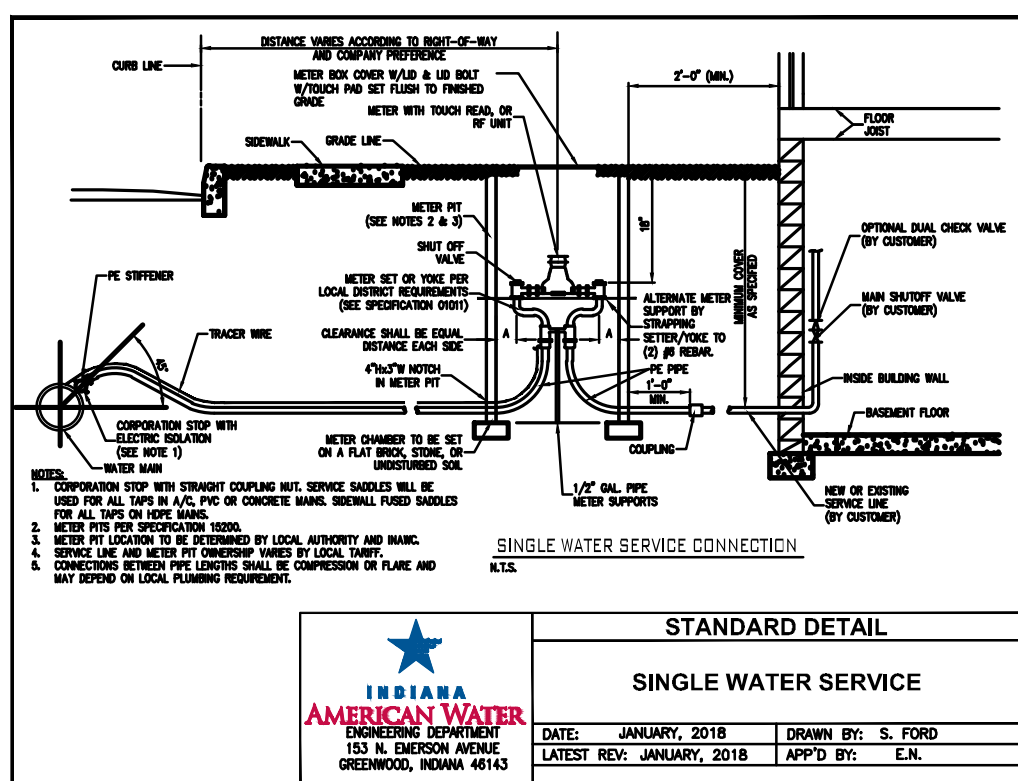
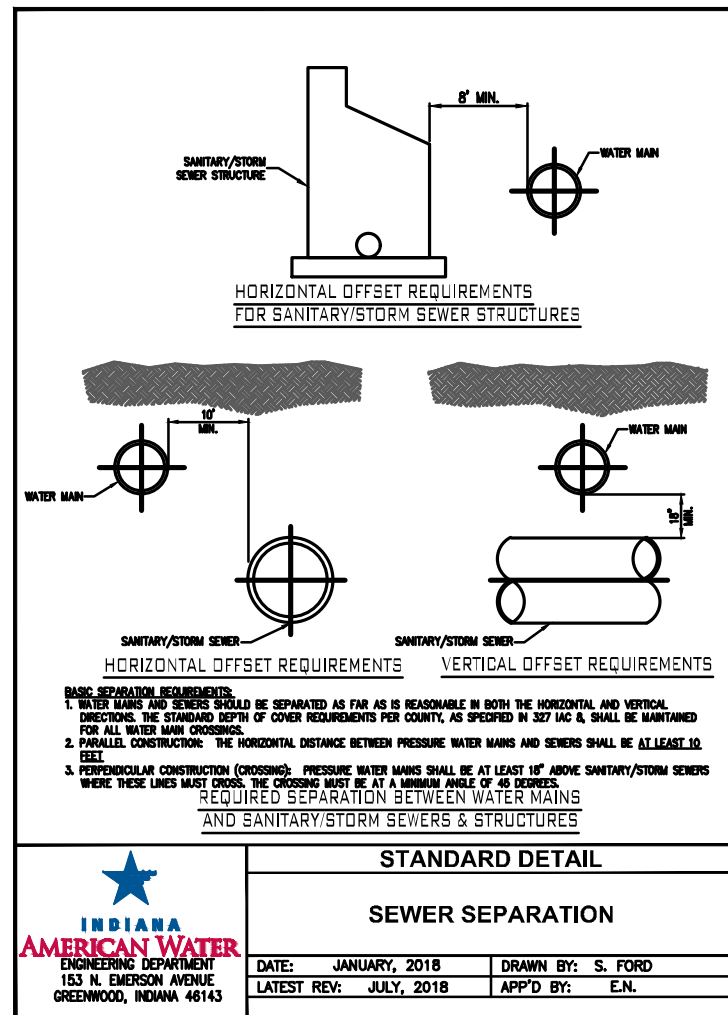
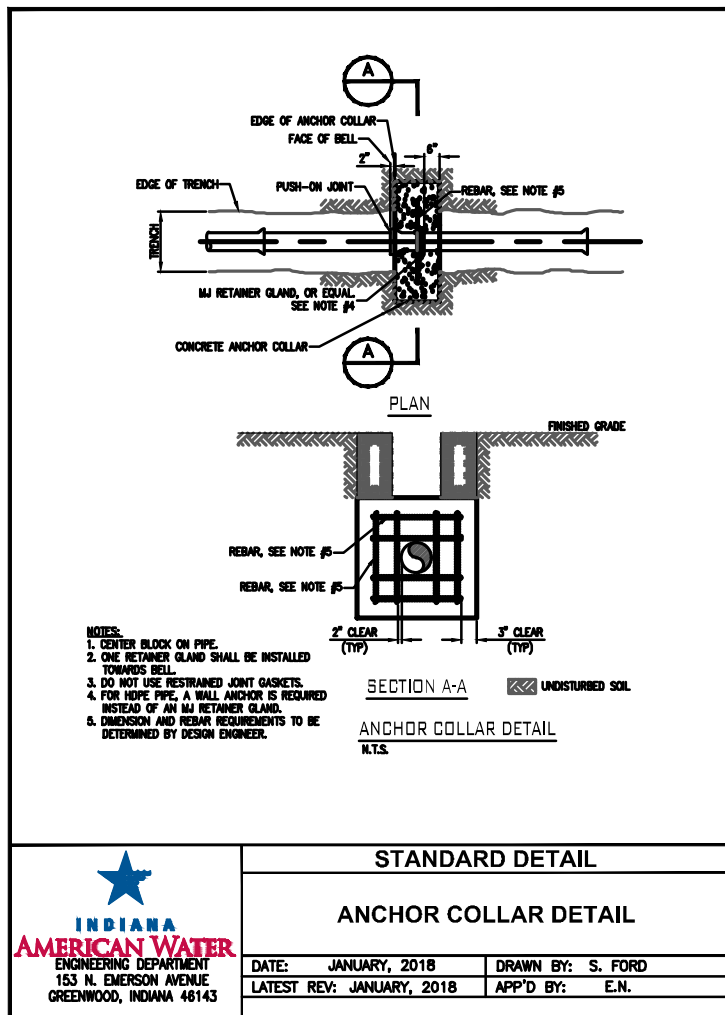
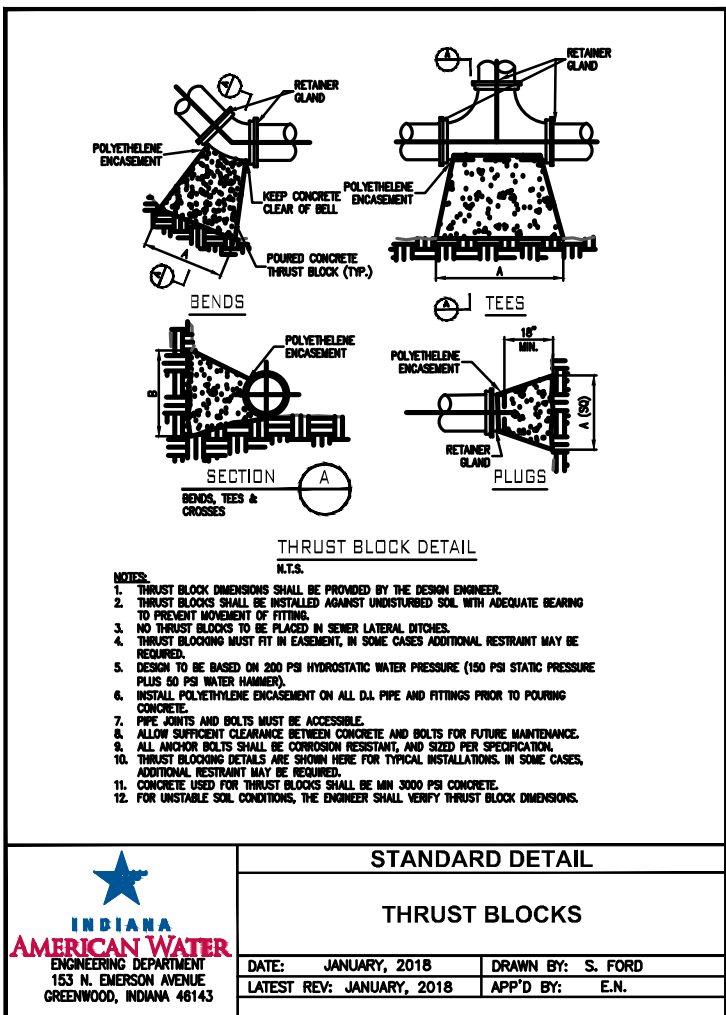
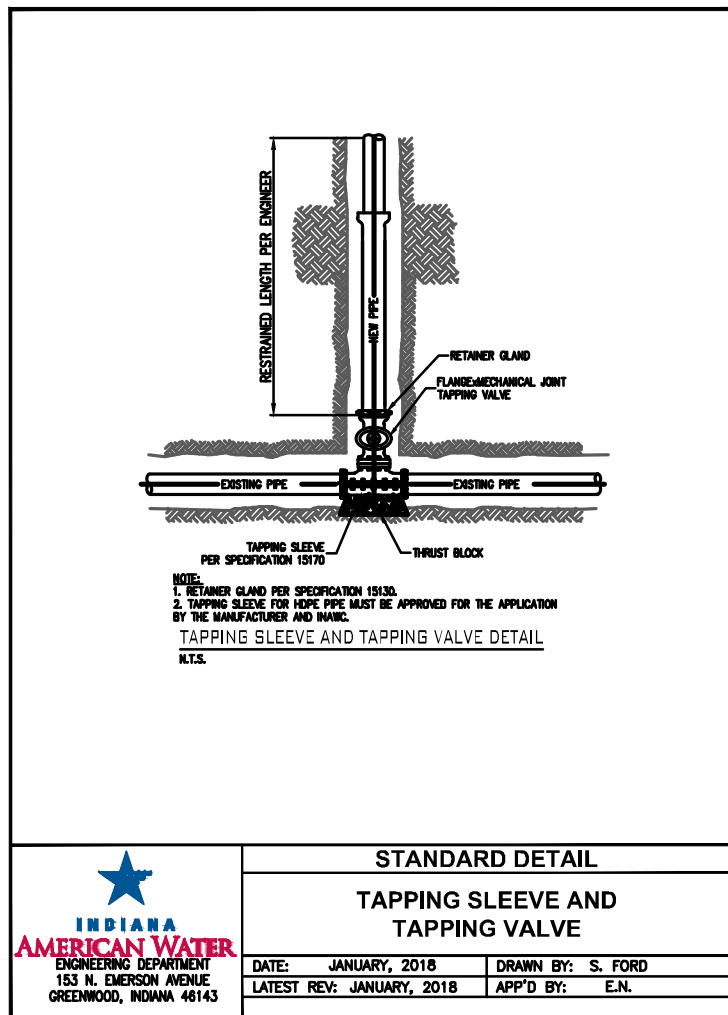
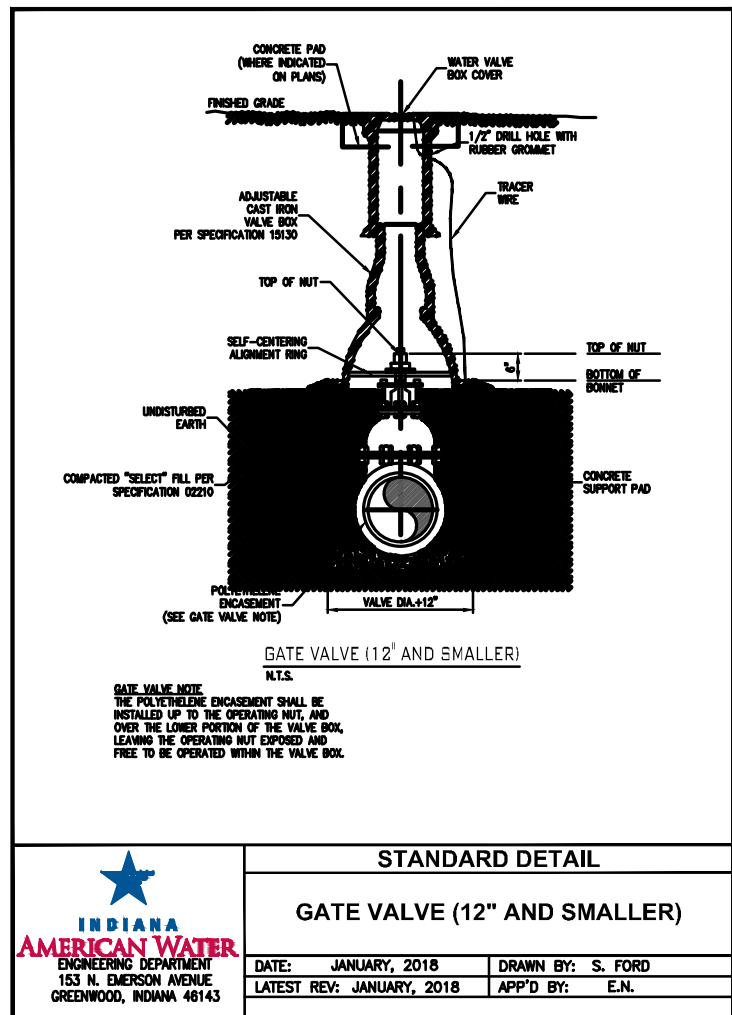
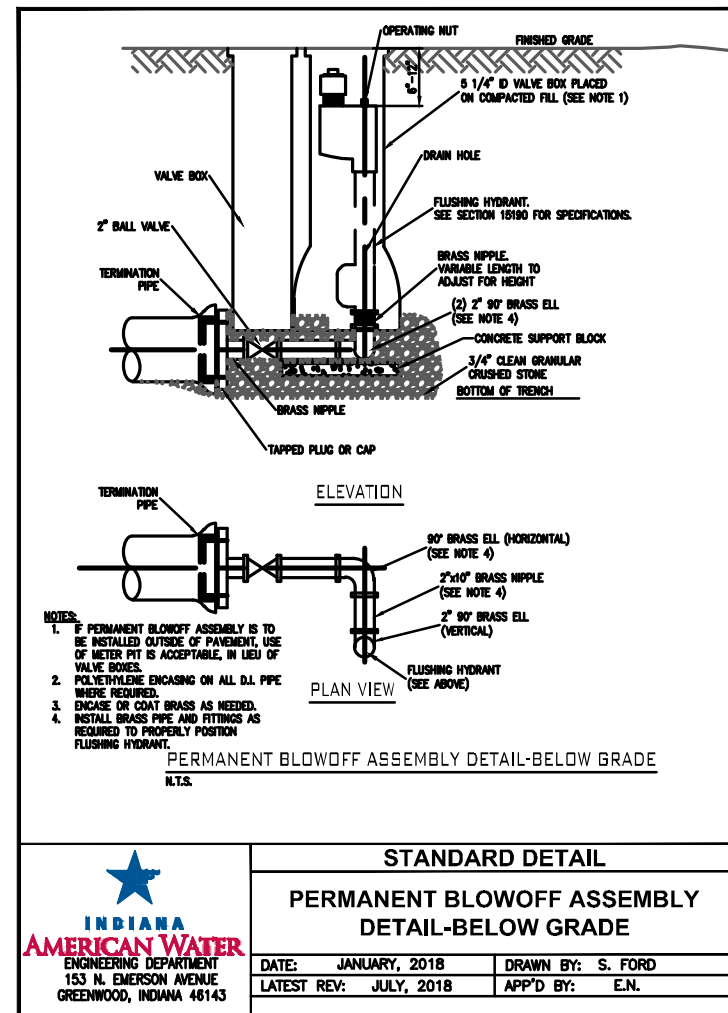
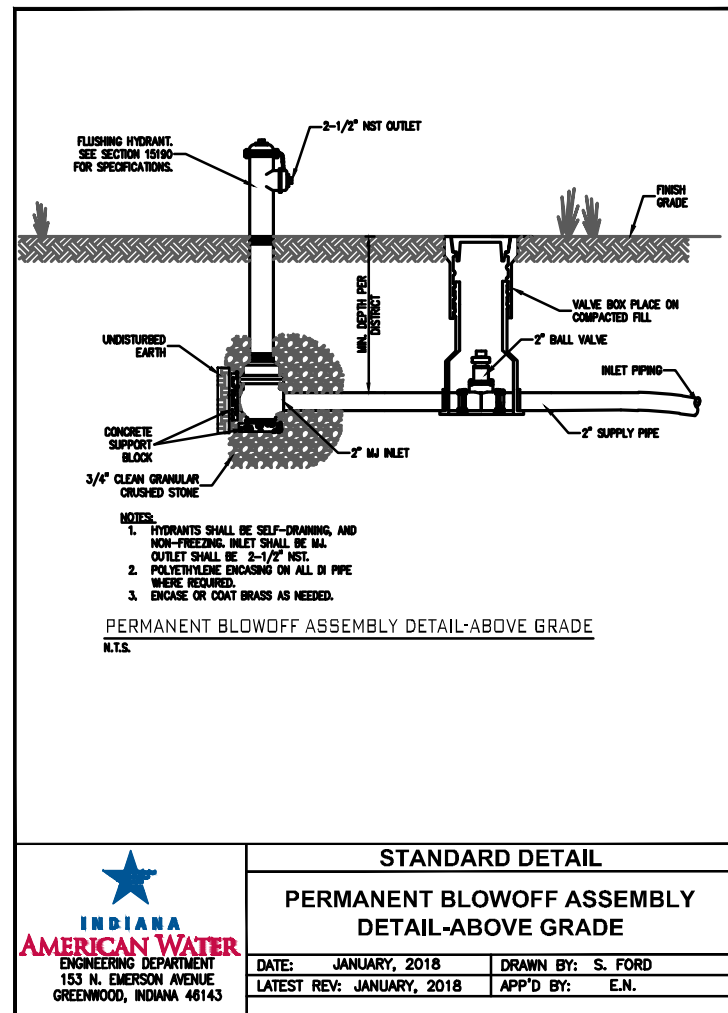
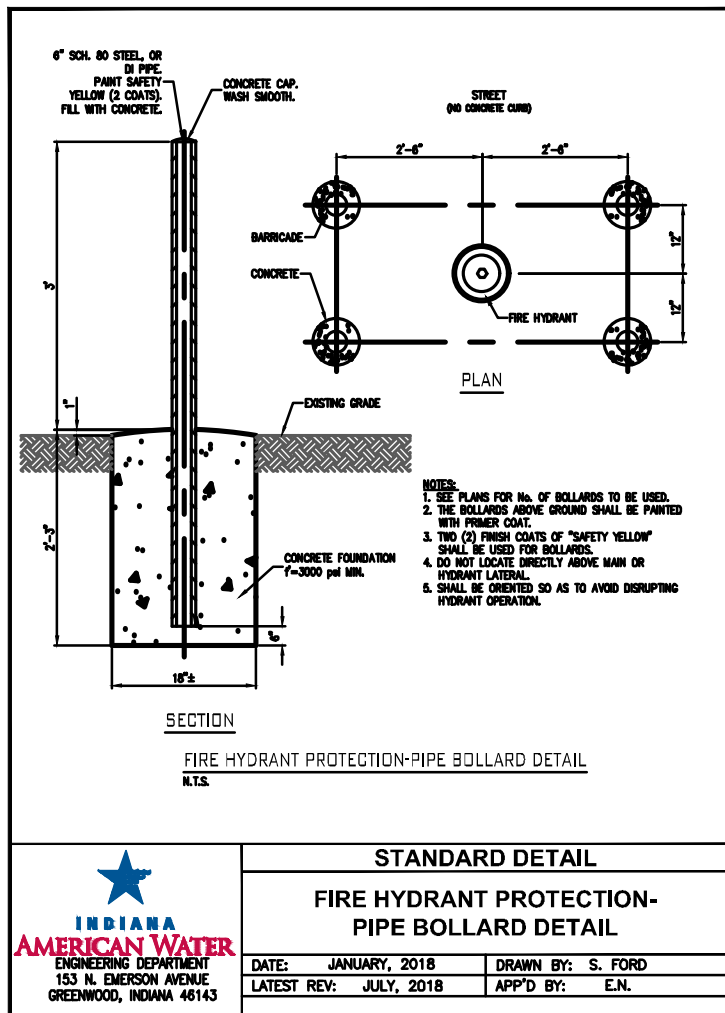
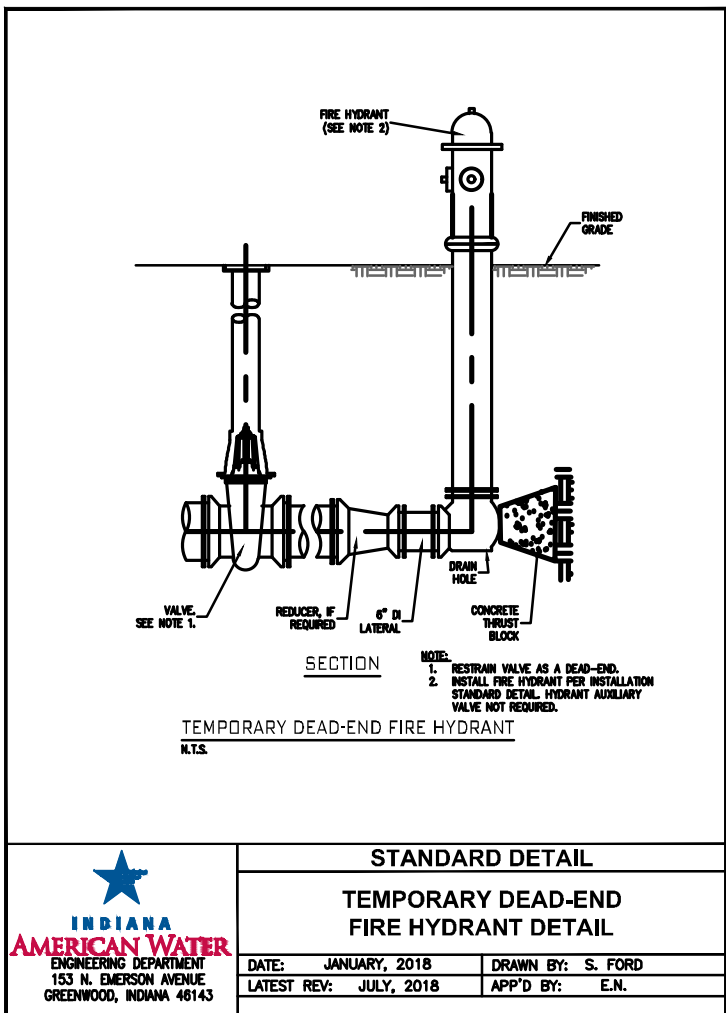
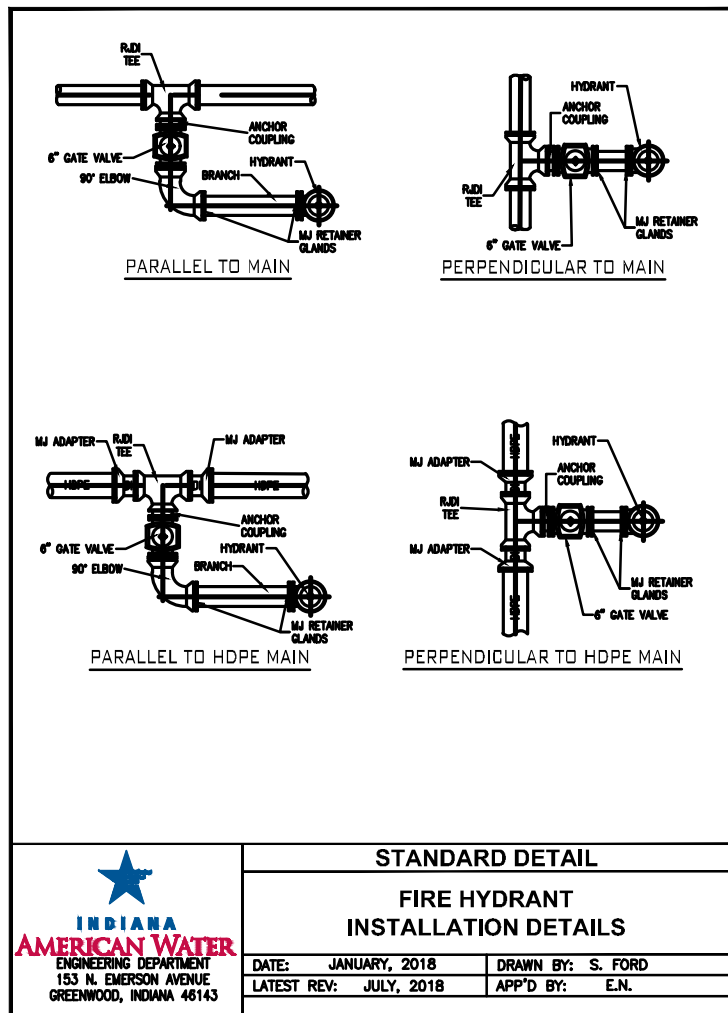
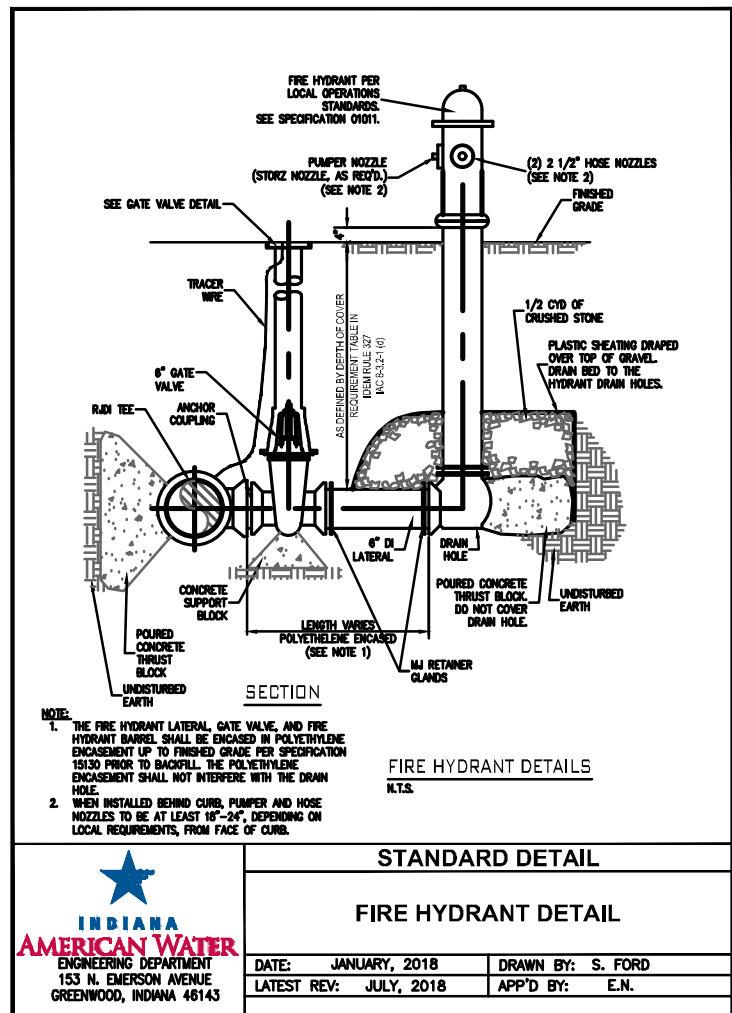


CURB, STANDARD
(NOT TO SCALE)



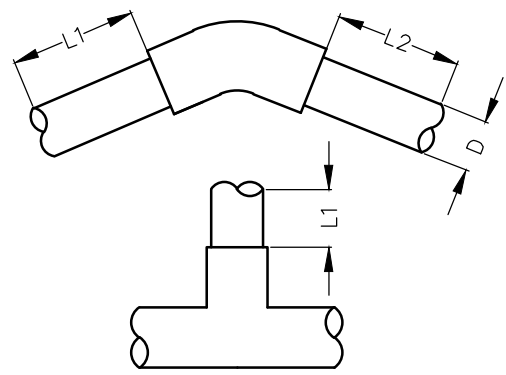
TYPICAL SIDEWALK DETAIL
(NOT TO SCALE)

CONSTRUCTION AND TESTING SHALL BE IN ACCORDANCE WITH THE TOWN OF LOWELL STANDARDS, SPECIFICATIONS AND DRAWINGS



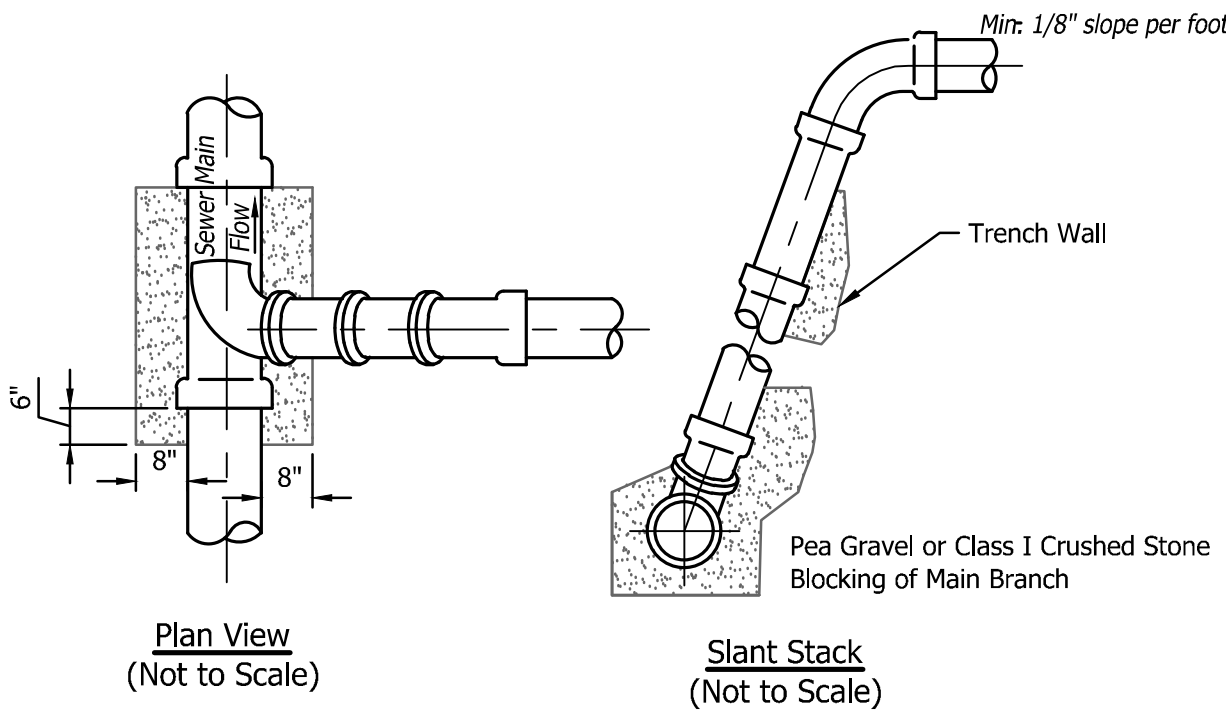
FITTING (DEGREES)	PIPE DIAMETER (D)				
	4"	6"	8"	10"	12"
11.25	2	2	3	3	4
22.5	3	4	5	7	8
45.0	6	9	11	14	16
90.0	15	22	27	33	39
TEE BRANCH	0	9	12	25	33
DEAD ENDS	20	28	37	44	52

MULTIPLY BY 1.75 FOR ALL POLYETHYLENE ENCASED AND PVC PIPE

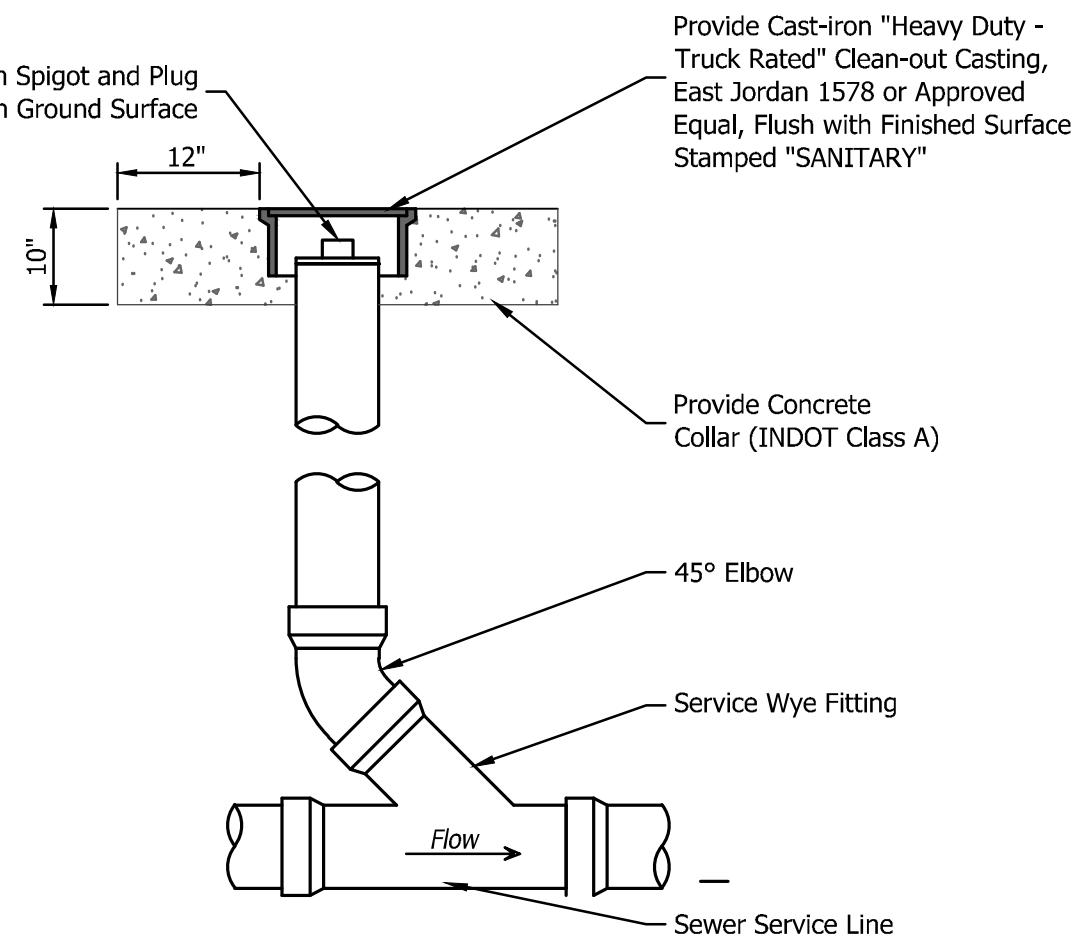


HORIZONTAL RESTRAINT TABLE (NOT TO SCALE)

Water Main shall be mechanically restrained per lengths noted above.

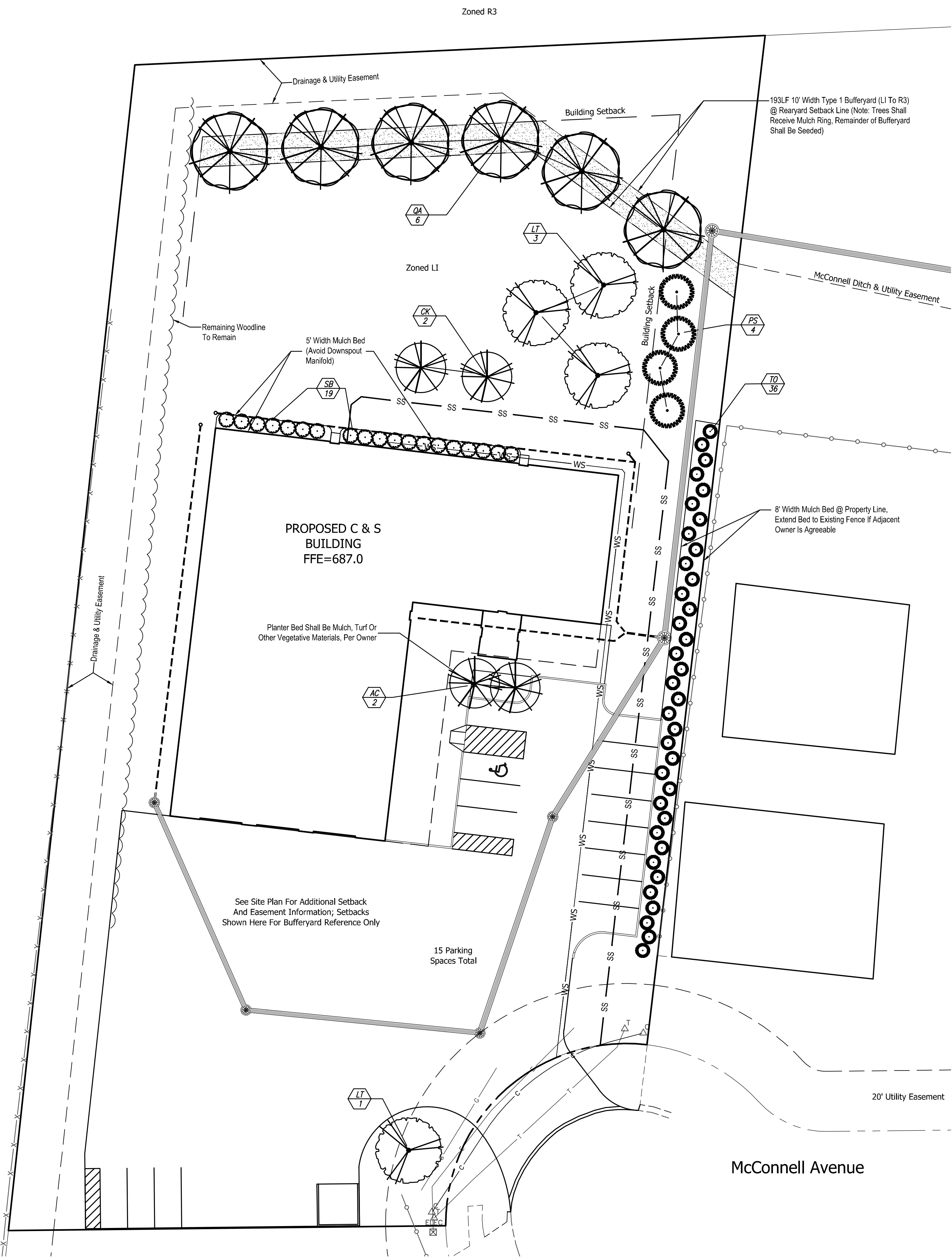


SANITARY LATERAL (NOT TO SCALE)



SANITARY SEWER CLEAN-OUT (NOT TO SCALE)

O:\PROJECTS\2025\0952 BROOKER CONTRACTING-MCCONNELL AVE\20 CAD\PLANS\25-0952 DETAILS\DWG CONSTRUCTION DETAILS - WATER AND SANITARY ERIC FISHER 12.3.2023 1:07 PM



ORDINANCE REQUIREMENTS

Town Of Lowell Ordinance Section 155-091 A) Interior Site Landscape Requirements For Industrial Use:

- 1 Deciduous Tree (2.5" Cal.) Per 3,000 SF Of Ground Floor Area = 4 Required, 4 Provided
- 1 Needled Evergreen Tree (6" Height) Per 3,000 SF Of Ground Floor Area = 4 Required, 4 Provided
- 1 Ornamental Tree (2.5 Cal.) Per 3,000 SF Of Ground Floor Area = 4 required, 4 Provided
- 1 Foundation Planting Per 30LF Of Perimeter (Shrubs 12" Height Minimum) - 560LF Perimeter/30 = 19 Shrubs Required, 19 Provided.

Section 155-091 B) Additional Standards For "LI" Zoning:

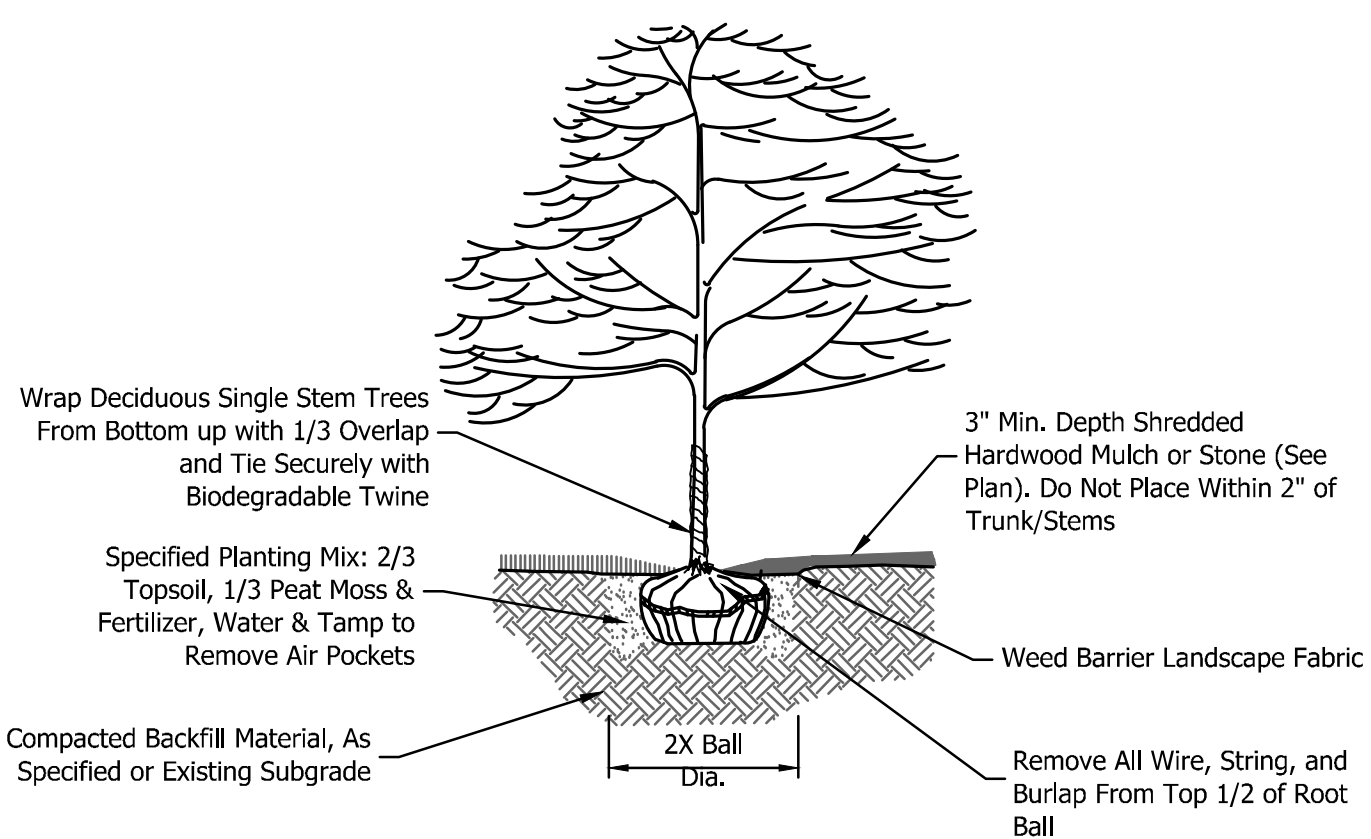
- Perimeter Screening For Adjacent Residential Properties Is Provided With Type 1 (L1 to R3) Bufferyard
- Landscape Islands To Be 150SF (With 1 Tree And 2 Shrubs Per Island), Required 8%
- Of Parking Area In Lots With Over 15 Spaces; NOTE - N/A (15 Spaces)
- Parking Lot Perimeter Screening Screening For Property To East Shall Be Provided, See Planting Plan.

Section 155.076) Bufferyard Standards

- *Type 1 Bufferyard (Site Less Than 2 Acres) Provided Behind Building Setback And McConnell Ditch & Utility Easement; 1 Deciduous Tree Per 30LF @ 193LF = 6 Trees Required, 7 Provided.

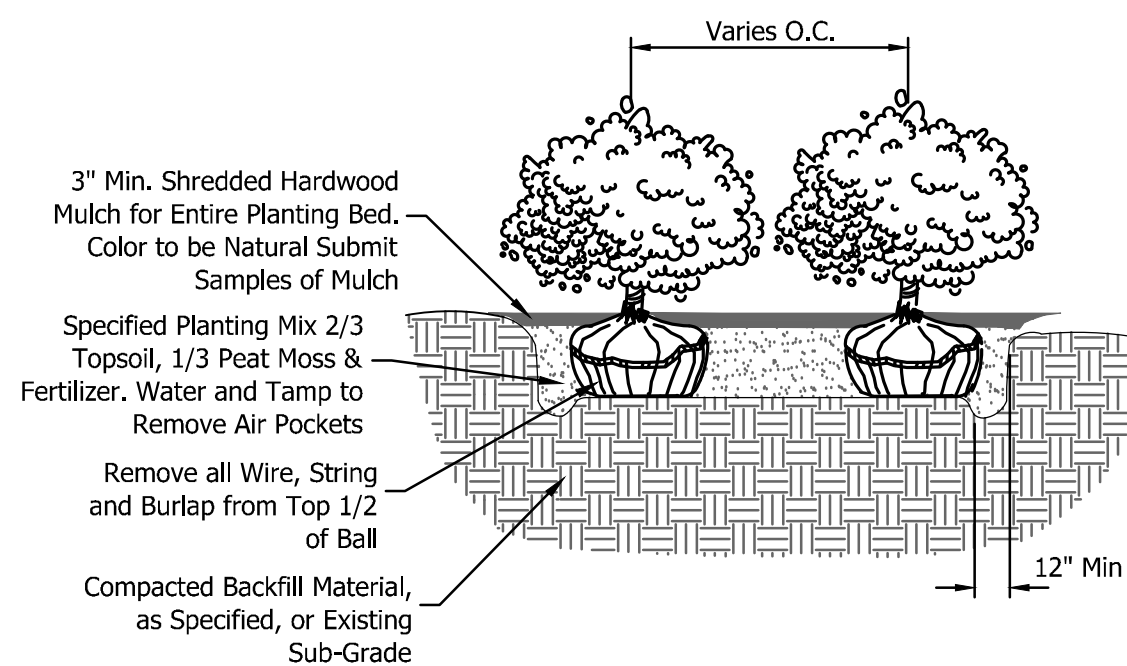
Section 155.094) Streetscape Standards

- Due to restricted existing frontage and utilities and proposed entrance, street tree compliance is not feasible.



TREE PLANTING

(NOT TO SCALE)



SHRUB BED PLANTING

(NOT TO SCALE)

PLANT SCHEDULE

Plant Symbol	Deciduous Shade Trees	Qty.	Common Name	Size	Condition	Comments
LT	Liriodendron tulipifera 'JFS-Oz'	4	Emerald City Tulip Tree	2.5" Cal.	B & B	
QA	Quercus acutissima	7	Sawtooth Oak	2.5" Cal.	B & B	
	Ornamental Trees	Qty.	Common Name	Size	Condition	Comments
AC	Amelanchier canadensis 'Sprizam'	2	Spring Glory Serviceberry	2.5" Cal.	B & B	
CK	Cornus kousa	2	Kousa (aka Chinese) Dogwood	2.5" Cal.	B & B	
	Evergreen Trees	Qty.	Common Name	Size	Condition	Comments
PS	Pinus strobus	4	Eastern White Pine	6' Hgt.	B & B	Matching
TO	Thuja occidentalis 'Emerald'	36	Emerald American Arborvitae	6' Hgt.	B & B Or Cont.	Plant 5' O/C
	Deciduous Shrubs	Qty.	Common Name	Size	Condition	Comments
SB	Spiraea x 'Goldmound'	19	Goldmound Hybrid Spiraea	12" Hgt. Minimum	#3 Cont.	Plant 5' O/C Maximum

LANDSCAPE REQUIREMENTS

1. Contractor is responsible for locating and verifying all utilities prior to commencing any work. Utilities shown on the drawings are for "reference only" and may not depict exact locations or depths. Contractor Shall notify 811, prior to any excavation for existing underground utility locations.
2. Contractor shall field modify plan locations (as required), for approval, to avoid conflicts with existing underground utility lines, piping, and swale flowlines. Contractor shall be responsible for any damage to utilities caused by their operations and associated repair costs.
3. Contractor is responsible for obtaining any required permits.
4. Contractor shall examine existing conditions and verify that they are acceptable for the required work. Notify the Landscape Architect of any discrepancies with the information shown on the plans before beginning work. Prior to starting work, the Contractor shall complete rough grading in planting areas and remove all debris larger than one inch (1") in diameter from the soil. Coordinate final grading and topsoil placement and/or soil modifications with plant installation.
5. Protect all existing paving, structures, utilities, and plant material.
6. Contractor is responsible for removal of any existing grass, weeds, or scrub growth within limits of plant bed edge or within 5' diameter circle around the base of each tree.
7. Plans and other materials are quantified and summarized for the convenience of the owner and jurisdictional agencies only. Contractor shall confirm and install sufficient quantities to complete the work as drawn on the plans. No additional payments will be made for materials required to complete the work as drawn. Contractor is responsible for verifying all quantities.
8. All proposed plant substitutions must be approved by the Landscape Architect.
9. All plant material shall be warranted for one (1) year from the date of final acceptance.
10. Plants shall conform to the minimum measurements listed on the plant list.
11. All plant material shall be shall comply with all recommendations and requirements of ANSI Z60.1-2004 "American Standard for Nursery Stock." Plant material shall be healthy, vigorous stock grown with good horticultural practice under climatic conditions similar to those of the project site, and installed in accordance with methods established by the American Association of Nurseriesmen.
12. All material must be tagged by the nursery of origin for proper identification in the field. Tags are only to be removed after acceptance and inspection by the Landscape Architect.
13. All trees and shrubs to be mulched with 3" depth natural shredded hardwood mulch free of foreign matter. Trees outside of bed lines to be mulched with a 5' diameter mulch ring. Mulch shall not be placed within 3" of trunks.
14. Rake topsoil to eliminate uneven areas and remove debris, roots, branches, and stones in excess of 1 inch size. Ensure positive drainage is retained away from buildings during landscape construction activities.
15. All landscape areas disturbed by construction shall be seeded unless noted otherwise.
16. Contractor is responsible for erosion control in all seeded areas.
17. All planting bed edges not indicated to receive metal edging shall receive a spade edge.
18. Clean all surfaced of soil, mulch and landscape debris after work is complete.
19. Field-adjust plant locations if required to avoid utilities and swales.

QUANTITIES SHOWN ON THE PLANT LIST ARE FOR THE CONTRACTOR'S INFORMATION ONLY. IN CASE OF DISCREPANCY, THE ACTUAL COUNT ON THE LANDSCAPE PLAN PREVAILS.

