



October 23, 2020

Kevin Stoltenberg, PE
City Engineer
Engineering & Public Works
City of Maryville
416 West Broadway
Maryville, TN 37801

RE: Site Plan Review Comment Response Letter
Project: #2020-0714-01
MSM Development - 1421 W Lamar Alexander

Kevin:

We received plan review comments from you via email on July 24, 2020. Below is a summary of the review comment and our response to each comment.

Building & Codes Department, Maria Nelson

1. 3 handicap parking spaces allocated

Per IBC Table 1106.1

Area 1 – for 60 spaces (51-75) three shall be handicap

Area 2 – for 7 spaces (1-25) 1 shall be handicap

Area 3 – Indoor Archery Building – for 8 spaces (1-25)1 shall be handicap.

1106.6 Location. Accessible parking spaces shall be located on the shortest accessible route of travel from adjacent parking to an accessible building entrance... Where buildings have multiple accessible entrances with adjacent parking, accessible parking spaces shall be dispersed and located near the accessible entrances.

RESPONSE: See Sheet C-104. Handicap parking space added adjacent to the indoor archery building.

2. Please note distance(s) to other structures on the same lot. (TABLE 601 & 602 Fire-resistance rating requirements for exterior walls & Buildings based on fire separation distance a, e, h)

RESPONSE: See Sheet C-104. Dimensions added as requested.

3. Side setback (What is the distance from the existing building to property line on the Petros side).



RESPONSE: See Sheet C-104. Dimensions added as requested.

4. Retaining wall(s) shall be designed by an engineer in accordance with 2018 IBC 1807.2. An engineer shall inspect the retaining wall(s) as it is being constructed. Acceptance of the constructed wall(s) shall be by the inspecting engineer. A 42 inch high guard with maximum openings of 4 inches must be provided on the retaining wall where the wall height is greater than 30 inches. (2018 IBC 1015 as amended locally)

RESPONSE: See Sheet C-105. Retaining walls added to dumpster pad enclosure. See architectural and structural plans for design details.

5. Special inspection of soil bearing capacity, concrete strength, and concrete reinforcing steel are required and shall be performed by an approved agency. This agency shall make appropriate reports of conditions and discrepancies. Copies of these reports shall be provided to the Building Official and others as indicated in 2018 IBC Section 1704. A final report documenting required special inspections and correction of discrepancies noted in the inspections shall be submitted to the Building Official prior to the issuance of the Certificate of Occupancy.

RESPONSE: Noted.

6. This review is limited to site plan issues only. A separate submittal and plan review is required for the new building plans, demolition of buildings and alteration of existing buildings.

RESPONSE: Noted.

Electric Department, James Bond

1. Show the approximate location of the existing underground electric line from the pole to the transformer (see attached sketch).

RESPONSE: See Sheets C-104 and C-105. Existing underground electrical line added to the plans as requested.

2. The existing electric service lines from the transformer to the building are within the building addition area. Replacement and new service conduits and cables are the responsibility of the customer.

RESPONSE: See Sheet C-105. The existing underground electrical line is in an area of fill, will not reduce the depth of cover, and will remain in place.

3. Provide the number and sizes (Amps) of electric services required. The voltage of all services shall be three phase, 120/208Y Volts.

RESPONSE: 400A/3 Phase for each restaurant space; 200A/3 Phase for the retail space; and 200A/3 Phase house service for lights. Electrical design plans will be submitted for building permit review.



4. Any portion of a building within 15' of the pad mount transformer will require additional fire rating and no unscreened openings (windows or doors). A block screening wall can be constructed around portions of the transformer, but minimum clearances from the pad of six feet on the front (facing NW) and three feet on all other sides must be maintained.

RESPONSE: See Sheet C-104. Indoor archery building moved to be 16-feet from transformer pad.

Engineering & Public Works, Kevin Stoltenberg, PE

- General Information:
 1. To expedite review of re-submittals, please provide a comment and response document. The format will have each department reviewer's comments along with the designer's response of how the comments have been addressed.

RESPONSE: Provided herein.

2. Be sure that you have received all comments from all City departments before re-submitting the site plan for approval.

RESPONSE: Noted.

3. Please re-submit five (5) copies of the revised site plan and a PDF for final approval.

RESPONSE: Copies provided as requested.

4. Please leave a space in the lower right hand corner for an approval stamp at least 4"x4".

RESPONSE: See cover sheet G-001. A 4" x 4" space has been provided as requested.

- Items that need to be addressed
 1. This site plan will require approval by Planning Commission due to the location within the Lamar Alexander Parkway Overlay District.

RESPONSE: Noted.

2. The approval of a second entrance (even as a future phase) would be contingent upon a traffic impact study which demonstrated the need for the access and/or other improvements. TDOT would also likely require the study.

RESPONSE: A traffic impact study has been prepared by CDM Smith and submitted for your review.

3. Regardless of the phasing, TDOT will require an Access Permit for the changing use of the site to evaluate the existing entrance, and also a ROW Grading Permit for the work proposed within TDOT R.O.W. Contact Duane Rainbolt at Region 1 Headquarters.



RESPONSE: Site plans were submitted to Duane Rainbolt with TDOT on July 24 for review.

4. The left turn lane will be required to be constructed as part of the first phase. A right turn lane may also be warranted. A TIS will need to be conducted to provide recommended lengths for storage and tapers.

RESPONSE: See Sheet C-101 for turn lane and details based on review comments from TDOT.

5. A typical section and paving detail should be included for the left turn lane. Also, the median crossover may need to be restriped to accommodate the turning movements.

RESPONSE: See Sheet C-101 for turn lane and details based on review comments from TDOT.

6. A turn around needs to be provided at the end of the parking aisle due to the length. Consider either striping an area for no parking or creating a circulatory aisle.

RESPONSE: See Sheet C-104 and C-104A for turn around area adjacent to the dumpster pad.

7. Handicap spaces should be located closer to the entrances to the archery range, and also the easternmost restaurant addition.

RESPONSE: See Sheet C-104. Handicap parking space added adjacent to the indoor archery building.

8. Add a new dumpster pad.

RESPONSE: See Sheet C-104A and C-105A. Dumpster pad added as requested.

9. Please show the existing utility poles along US321 on the plan sheets.

RESPONSE: See Sheet C-104. Existing utility poles added as requested.

10. Please provide a Letter of No Objection (LONO) from TVA for the proposed grading within the powerline easement.

RESPONSE: The property owner will discuss this issue with you.

Fire Prevention Bureau, Steven Talbott

1. What is the new location of the dumpster pad being eliminated?

RESPONSE: See Sheet C-104A and C-105A. New dumpster pad added.



2. 1 new hydrant will need to be added that has already been approved by the water department at the new entrance.

RESPONSE: See Sheet C-104 and C-105. Fire hydrant added as requestd.

Planning Department, Mike Brusseau

1. The site is located within the Parkway District. Planning commission review and approval will be required prior to issuance of building permits. The new proposed curbcut and driveway will need to be approved by TDOT, and, based on the posted 55 mph speed limit, must be located at least 400 feet away from the existing curbcut to the west, measured center-line to center-line. If this cannot be achieved, then a traffic impact study can be submitted for review. It must justify the need for the second curbcut. Also, the height limit for structures in the Parkway district is 35 feet. The next deadline for application to the Planning Commission is Monday July 27 to be placed on the August 17 agenda.

RESPONSE: An application was submitted on July 27 for the planning commission meeting on August 17. The proposed driveway is located 400' from the existing driveway, as shown on sheet C-104.

2. Landscaping – A landscaping plan must be submitted for review. This plan should include notes with a breakdown of pervious area vs impervious area for the purpose of calculating the below landscaping requirements. Only the area of the new development needs to be included in these calculations. Landscaping should be focused along the perimeter of the parking lot, especially the south end along the entrance drive, and within landscape islands. At least 30% of the lot must be landscaped, with the majority of it being visible from the road. At least one 2 inch caliper tree must be planted on the parcel for every 2,000 sq. ft. of impervious area. Ancillary structures and equipment, such as dumpsters and HVAC units must be screened from public roads with landscaping. Must show the location any of these structures, along with landscape screening proposed.

RESPONSE: Landscaping plan emailed to City for planning commission review.

3. Lighting - If exterior lighting is proposed, it must comply with 14-211(5)(a)(iv) of the Zoning Ordinance. All outdoor light fixtures should be full-cutoff fixtures which do not allow light to be emitted above 90 degrees, and may not exceed 30 feet in height.

RESPONSE: See electrical design plans submitted with building plans.

4. Parking – The plan shows the 75 parking spaces required for the uses and square footages shown, so no change needed.

RESPONSE: Noted.

5. Informational comments:
 - a. Signs. Sign permits are issued in a separate process. Contact Scott Poland at skpoland@maryville-tn.gov or 273-3509 for more information about signage requirements and



the permitting process. Additional signage regulations will apply because of the location within the Parkway District.

b. Building Plans. Gary Walker is the contact for building plan review, and can be reached at gcwalker@maryville-tn.gov or 273-3510.

c. Commercial Design Criteria – The guidelines from the zoning ordinance are provided as an attachment for your information.

d. Site Plan Review – The guidelines from the zoning ordinance (14-212) are provided as an attachment for your information.

RESPONSE: Noted.

Engineering & Public Works, Dan Cantwell

1. The dumpster container must be eight (8) cubic yards.

RESPONSE: Noted.

2. The concrete dumpster pad must be constructed a minimum 10 feet wide by 20 feet deep for one (1) container, 24 feet wide by 20 feet deep for two (2) containers.

RESPONSE: See Sheet C-104A and C-105A for new dumpster pad layout.

3. Screening of the dumpster area must have a minimum INSIDE clearance of 12 feet for one (1) container or 24 feet wide by 20 feet deep for two (2) containers. Doors/gates are not recommended. If customer installs gates, they must be opened on garbage day or customer will be charged for the City to open.

RESPONSE: See Sheet C-104A and C-105A for new dumpster pad layout.

4. The turning radius must be a WB-40 design vehicle type for all turns on the property.

RESPONSE: A vehicle turning path drawing, using an AASHTO SU-40 vehicle, was emailed to the City for review and approval.

5. The minimum overhead clearance required is 14 feet.

RESPONSE: Noted. There are no overhead obstruction in the area of the dumpster pad.

6. A commercial garbage agreement must be signed prior to starting service.

RESPONSE: Noted.

7. There is a \$14.50 charge/fee each time dumpster is serviced.

RESPONSE: Noted.



Stormwater Department, Chuck Rowan, PE

1. The proposed fill at the northwest corner of the Indoor Archery Building appears to be encroaching in an area that was excavated as part of the FEMA NFIP No-Rise Certification for the Petro's Restaurant project. Provide an analysis that shows the approved No-Rise Certification will still be valid if the slope is shifted as shown or provide a mitigation plan for the encroachment.

RESPONSE: Enclosed with this submittal is a Laurel Bank Branch Flood Study prepared by Silvus Engineering Consulting indicating a 175-foot extension of the high flow channel is required to achieve a no-rise condition. See plan sheet C-105A for channel construction details.

2. Show the total pre vs. post developed impervious area in square feet on the plans in the Site Data on sheet G-001.

RESPONSE: See Sheet G-001. Impervious area added as requested.

3. Add a note to the plans that the contractor shall have an approved stamped and signed copy of the site plans on site to work from.

RESPONSE: See Sheet C-105 and C-105A, note added as requested.

4. Add a bold large print note to the plans that a grading permit will not be issued until a Notice of Coverage from the Tennessee Department of Environment and Conservation (TDEC) has been issued.

RESPONSE: See Sheet C-105 and C-105A, note added as requested.

5. Add a note to the construction sequence that no site grading can commence until a grading permit has been issued and no grading permit will be issued until all erosion and sediment control is in place according to the site specific SWPPP, and passes inspection. Contact Doug Chapman for inspection at (865) 273-3518.

RESPONSE: See Sheet C-102, sequence of construction note #1.

6. Add a bold note to the plans that a site assessment by a certified professional shall be performed within one month of commencement of construction activities as described in the Construction General Permit. A copy of the assessment shall be provided to the City of Maryville Stormwater Department.

RESPONSE: See Sheet C-102, not added as requested.

7. Add a bold note to the site plan that all stormwater pipes and structures require inspection before covering. Contact Doug Chapman for inspection at (865) 273-3518.

RESPONSE: See Sheet C-105 and C-105A, note added as requested.



8. Add a note to the plans that as-built drawings will be required for all stormwater infrastructure installed as part of this project. As-built drawings and calculations shall be submitted with a completed As-Built Checklist found in Appendix C sheets C-1 through C-3 of the City of Maryville Stormwater Quality Policy Manual. As-built information shall be submitted as one hard copy and one digital format.

RESPONSE: See Sheet C-105 and C-105A, note added as requested.

Water & Sewer Department, Brian Smith

1. Move the sewer tap location to the nearest downstream manhole.

RESPONSE: See Sheet C-105A for plan and Sheet C-202 for profile.

2. The existing sewer service to the building is a shared service with Petro's. This will need to be condemned where the service is split. This needs to be shown on the site plan.

RESPONSE: See Sheet C-105, note added indicating to abandon existing sewer service.

3. Include note that if the property is subdivided the proposed six inch sewer service will need to be replaced with an eight inch sewer main before plat can be signed.

RESPONSE: See Sheet C-105 and C-105A, note added as requested.

4. Include note to read "Any existing utility structures shall be brought into conformance with finish grade in accordance with the Rules, Rates, and Policies of the City of Maryville Water Quality Control Department prior to acceptance of the project. Contact Stacy Frye (865-273-3344) or Tom Bible (865-273-3323) for inspection of new installation or for any adjustment."

RESPONSE: See Sheet C-105 and C-105A, note added as requested.

5. Contact Todd Burchett (865-273-3347) for grease interceptor requirements.

RESPONSE: Noted.

6. Contact Danny Kimsey (865-273-3339) for cross connection device requirements.

RESPONSE: Noted.

7. Contact Charlie Clearman (865-273-3325) for water meter sizing requirements.

RESPONSE: Noted.

Sincerely,

LandTech, LLC

James J. Lewis, Jr., PE, LS

Owner/Member

jay@landtechco.com

**City of Maryville - Engineering
and Public Works
Stormwater Department**
Mr. Chuck Rowan, PE
416 West Broadway
Maryville, TN 37801
865.273.3506



September 21, 2020

Re: Laurel Bank Branch Flood Study – Phase 3 building addition

Mr. Rowan,

The purpose of this letter is to describe the recent follow-on analysis of the 321-Petros site. Please recall that the site was evaluated in recent years to reflect fill placement for a new Petros and removal of in-situ soils downstream of the site such that the net impacts on the Base Flood Elevation (BFE) was zero or negative (i.e. that “no-rise” conditions were met).

After the initial grading activity, as-built conditions were surveyed and modeled and the site was determined to cause an increase in BFEs. So, in 2019, additional grading activities were performed to introduce a high-flow channel in the right overbank between the building site and the stream. This high-flow channel resolved the BFE increase issue. This grading activity of placing the high flow channel was referred to “Phase 2”

Now, the owner desires to add a structure to the site that will again project fill into the Floodway. For consistency with the previous analyses, this is referred to as “Phase 3”. The fill placement within the floodway is small, but it is in an area known to be sensitive in the HEC-2 Hydraulic Model of Laurel Bank Branch. Therefore, a detailed analysis is performed.

Analysis Approach

This analysis is performed as an addendum to the original analysis of the Petros grading. Therefore, the Pre-Project Model reflects conditions at the site before any work was performed (including the Petros grading). The Post-Project Model reflects conditions at the site after all work is performed, including both the Petros grading and the new archery building. The results are then compared to determine what additional improvements may be required to produce “No-Rise” in Base Flood Elevations anywhere in the community.

In the original analysis, the pre-project model was created by adding cross-sections to the duplicate Effective Model at key locations to reflect the impacts of the Petros grading. In this addendum, an additional cross-section is needed to reflect the fill supporting the corner of the proposed archery building. Please see the attached Work Map 7 figure. Note that a cross-section is added at the location of the proposed fill placement for the archery building. This new cross-section is at River Mile 10538 and Station 2.04.

The new section at RM 2.04 is 68' upstream of the existing section at 2.03. The introduction of this section requires that the downstream reach length of section 2.07 be reduced by 68' from 207' to 139'. There is consistency in reach length.

The Pre-Project geometry for new section 2.04 is initially generated by importing the Pre-Proect geometry from the original analysis into HEC-RAS and interpolating a cross-section at the appropriate location (68' upstream of 2.04). The section data is then imported into Excel. The right overbank is modified at its right extents to reflect field survey data at the location of the proposed fill placement. This geometry is then inserted in the HEC-1 model to create the new Pre-Project Model, named PRE3.DAT.

The Post-Project Model geometry is based on the Phase 2 As-Built Model (ie conditions at the site now, after placement of the Petros fill and the high flow channel). The As-Built Model is then modified to add the new section at 2.04. Then, 2.04 is modified to reflect the proposed fill placement for the archery building, creating a Post-Project Model that reflects all work proposed at the site.

A comparison of these new Pre- and Post-Project conditions models demonstrates that the fill placement for the archery building does create an increase in BFE's. However, these increases are eliminated by extending the high flow channel an additional 175' downstream as shown on attached Work Map 7. The result are tabulated in the attached table. The column on the far right illustrates the total impacts of all of the work at the site. There is No-Rise in BFEs anywhere in the community.

As always, we appreciate your time on our projects. If you have any additional questions, please contact me anytime at the information below.

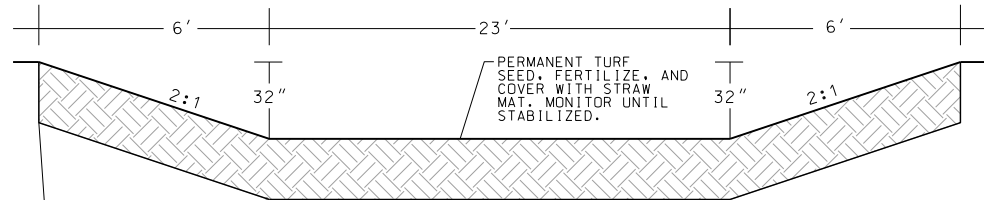
Regards,
Silvus Engineering Consulting, LLC



Nathan W. Silvus, PE
1815 Nantasket Road
Knoxville, TN 37922
865.414.0524

35' HIGH FLOW CHANNEL DETAIL

NOT TO SCALE

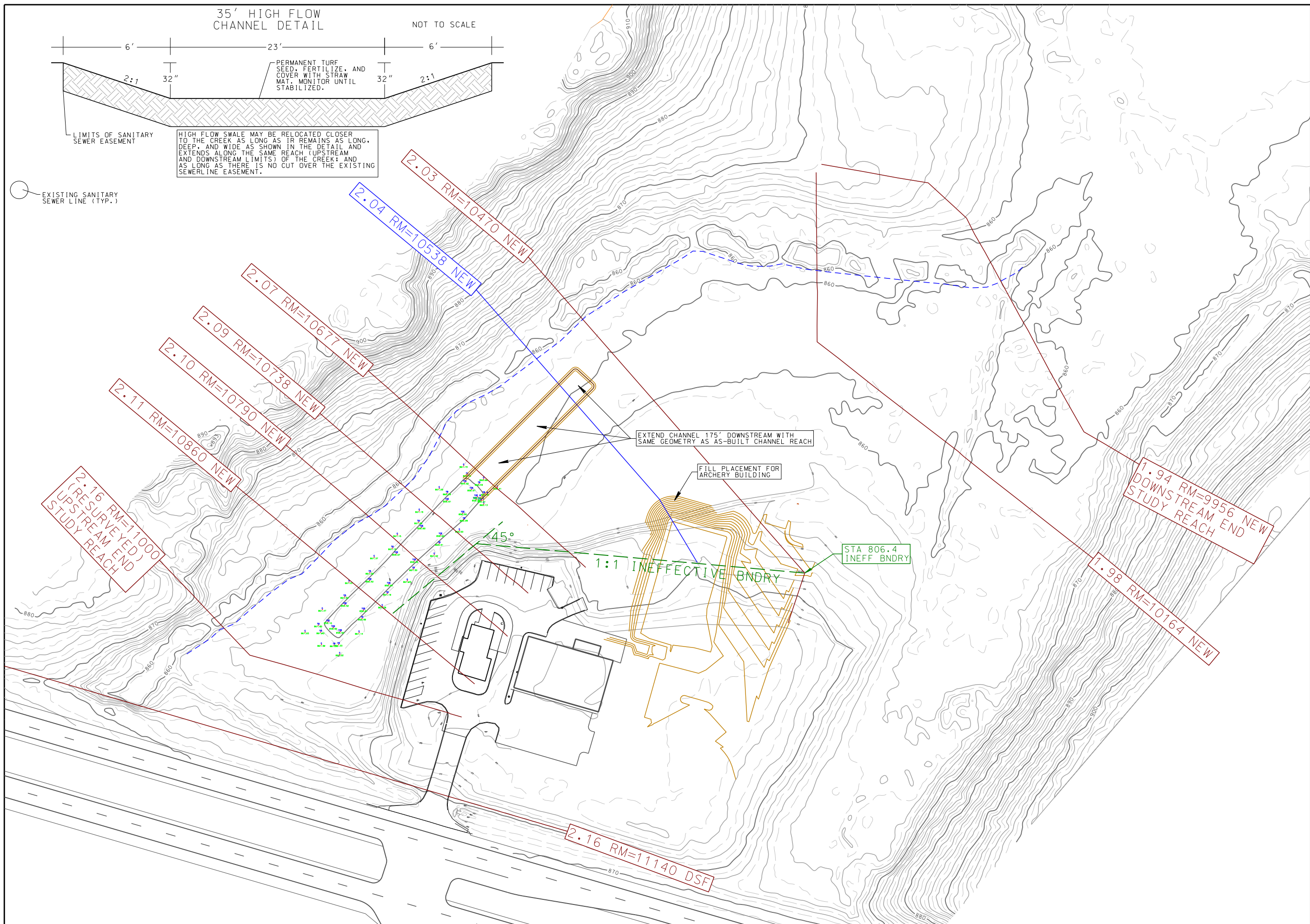


PERMANENT TURF SEED, FERTILIZE, AND COVER WITH STRAW MAT. MONITOR UNTIL STABILIZED.

HIGH FLOW SWALE MAY BE RELOCATED CLOSER TO THE CREEK AS LONG AS IT REMAINS AS LONG, DEEP, AND WIDE AS SHOWN IN THE DETAIL AND EXTENDS ALONG THE SAME REACH (UPSTREAM AND DOWNSTREAM LIMITS) OF THE CREEK; AND AS LONG AS THERE IS NO CUT OVER THE EXISTING SEWERLINE EASEMENT.

LIMITS OF SANITARY SEWER EASEMENT

EXISTING SANITARY SEWER LINE (TYP.)



NO.	REVISIONS:	BY	DATE

PREPARED FOR: **MSM DEVELOPMENT, INC.**
210 BANK STREET, LENOIR CITY, TN 37771

PROJECT: **LEDBETTER CENTER**
1423 WEST LAMAR ALEXANDER PKWY., MARYVILLE, TN 37801

ENGINEER: **SEC**
SILVUS ENGINEERING CONSULTING
NATHAN SILVUS, P.E.
1815 NANTASKET ROAD
KNOXVILLE, TN 37922
865.414.0524

DATE: 09-09-2020

SHEET: **WORK MAP 7**
PHASE 3
ADDITIONAL
FILL

THIS DRAWING IS PART OF A COMPREHENSIVE DESIGN AND SHOULD BE USED IN CONJUNCTION WITH THE WRITTEN TEXT AND COPYRIGHT 2019, SILVUS ENGINEERING CONSULTING LLC

100-YEAR RESULTS AND COMPARISONS																
Station	Model Dist	Desc	Published (NAVD)	Duplicate (NGVD29)	Duplicate (NAVD)	Pub minus Duplicate (NAVD)	Pre-Project (NGVD29)	Pre-Project (NAVD)	As-Built (NGVD29)	As Built (NAVD)	PH3 Pre (NGVD29)	Ph 3 Pre (NAVD)	PH3 Post (NGVD29)	PH3 Post (NAVD)	PH3 Post minus Pre-Project (NAVD)	
2.79	14472	Reach	872.30	872.50	872.16	0.1	872.55	872.21	872.55	872.21	872.55	872.21	872.55	872.21	0.00	
2.64	13682	Reach	871.60	871.90	871.56	0.0	871.96	871.62	871.96	871.62	871.97	871.63	871.97	871.63	0.00	
2.39	12362	Reach	871.30	871.53	871.19	0.1	871.61	871.27	871.61	871.27	871.62	871.28	871.62	871.28	0.00	
2.3	11942	Approach Big Springs	871.20	871.42	871.08	0.1	871.51	871.17	871.51	871.17	871.52	871.18	871.52	871.18	0.00	
2.3	11932	USF Big Springs		871.40	871.06		871.49	871.15	871.49	871.15	871.50	871.16	871.50	871.16	0.00	
Bridge																
2.3	11912	DSF Big Springs		870.80	870.46		871.05	870.71	871.05	870.71	871.07	870.73	871.07	870.73	0.00	
2.3	11872	Exit Big Springs		870.78	870.44		871.04	870.70	871.03	870.69	871.06	870.72	871.06	870.72	0.00	
2.28	11852	Approach Abandoned Bridge		870.73	870.39		871.00	870.66	870.99	870.65	871.02	870.68	871.02	870.68	0.00	
2.28	11842	USF Abandoned Bridge		870.73	870.39		871.00	870.66	870.99	870.65	871.02	870.68	871.02	870.68	0.00	
Bridge																
2.28	11830	DSF Abandoned Bridge		870.73	870.39		871.00	870.66	870.99	870.65	871.02	870.68	871.02	870.68	0.00	
2.28	11750	Exit Abandoned Bridge		870.71	870.37		870.97	870.63	870.97	870.63	871.00	870.66	871.00	870.66	0.00	
2.2	11380	Approach Hwy 321	870.30	870.63	870.29	0.0	870.79	870.45	870.77	870.43	870.81	870.47	870.81	870.47	0.00	
2.2	11340	USF Hwy 321		870.62	870.28		870.78	870.44	870.75	870.41	870.79	870.45	870.78	870.44	-0.01	
Bridge																
		BEGIN STUDY REACH														
2.16	11140	DSF Hwy 321		866.62	866.28		867.45	867.11	867.39	867.05	867.50	867.16	867.48	867.14	-0.02	
2.16	11000	Exit Hwy 321 (resurveyed)		866.57	866.23		867.35	867.01	867.28	866.94	867.30	866.96	867.28	866.94	-0.02	
2.11	10860	NEW					867.12	866.78	866.90	866.56	867.06	866.72	866.93	866.59	-0.13	
2.1	10790	NEW					866.97	866.63	866.50	866.16	866.91	866.57	866.54	866.20	-0.37	
2.09	10738	NEW					866.87	866.53	866.27	865.93	866.80	866.46	866.32	865.98	-0.48	
2.07	10677	NEW					866.76	866.42	866.21	865.87	866.69	866.35	866.32	865.98	-0.37	
2.04											866.48	866.14	865.95	865.61	-0.53	
2.03	10470	NEW					866.25	865.91	865.87	865.53	866.25	865.91	865.87	865.53	-0.38	
1.98	10164	NEW					865.65	865.31	865.61	865.27	865.65	865.31	865.61	865.27	-0.04	
1.94	9956	NEW					865.42	865.08	865.42	865.08	865.42	865.08	865.42	865.08	0.00	
		END STUDY REACH														
1.87	9620	Reach	864.70	864.99	864.65	0.1	864.99	864.65	864.99	864.65	864.99	864.65	864.99	864.65	0.00	
1.58	8090	Reach	861.70	861.93	861.59	0.1	861.93	861.59	861.93	861.59						
1.09	5700	Reach	857.90	858.23	857.89	0.0	858.23	857.89	858.23	857.89						
0.72	3770	Reach		856.76	856.42		856.76	856.42	856.76	856.42						
0.7	3670	Approach Middle Settlements	856.50	856.74	856.40	0.1	856.74	856.40	856.74	856.40						
0.7	3640	USF Middle Settlements		856.53	856.19		856.53	856.19	856.53	856.19						
Bridge																
0.7	3595	DSF Middle Settlements		855.93	855.59		855.93	855.59	855.93	855.59						
0.7	3475	Exit Middle Settlements		855.96	855.62		855.96	855.62	855.96	855.62						
0.62	3225	Reach	855.60	855.91	855.57	0.0	855.91	855.57	855.91	855.57						
0.62	3220	Reach		855.89	855.55		855.89	855.55	855.89	855.55						
0.62	3210	Reach		855.89	855.55		855.89	855.55	855.89	855.55						
0.62	3190	Reach		855.89	855.55		855.89	855.55	855.89	855.55						
0.46	2420	Reach	855.50	855.83	855.49	0.0	855.83	855.49	855.83	855.49						
0	0	Reach		855.78	855.44		855.78	855.44	855.78	855.44						

UPSTREAM BEES UNCHANGED OR DECREASED

STUDY REACH BEES UNCHANGED OR DECREASED

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14	C-402	STORMWATER POLLUTION PREVENTION PLAN
15	C-403	STORMWATER POLLUTION PREVENTION PLAN
16	C-404	STORMWATER POLLUTION PREVENTION PLAN
17	C-405	EROSION CONTROL DETAILS & SPECIFICATIONS
18	C-406	EROSION CONTROL STABILIZATION SPECIFICATIONS
19	C-407	DETAILS
20	C-408	DETAILS
21	C-409	DETAILS
22	C-410	DETAILS
23	C-411	DETAILS

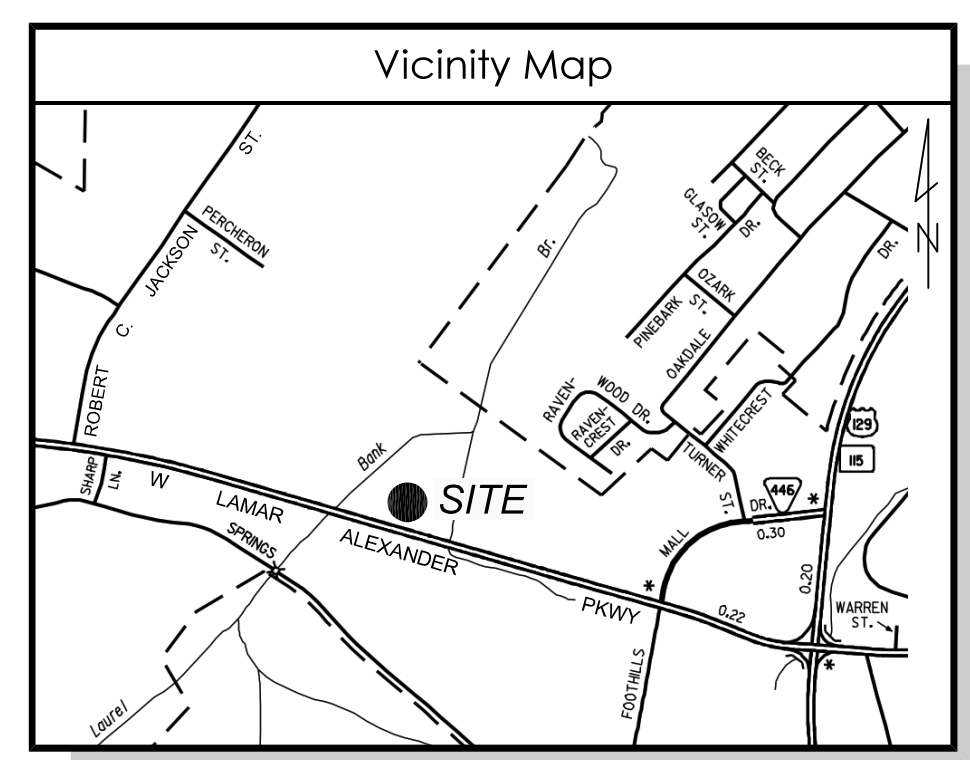
Plan Set Revisions		
Rev No.	Date	Description
0	07/14/20	SUBMITTAL TO CITY OF MARYVILLE
1	10/23/20	REVISION COMMENTS FROM CITY, TDEC AND TDOT

Site Data	
ADDRESS:	1421 W LAMAR ALEXANDER PKWY MARYVILLE, TN 37801
TAX PARCEL ID:	TAX MAP 57 PARCEL 9.06
TOTAL PARCEL AREA:	8.03 ACRES
PROPOSED DISTURBED AREA:	2.1 ACRES
FIRM MAP PANEL:	MAP 47009C0119C DATED 09/19/2007
ZONING:	BT (BUSINESS AND TRANSPORTATION)
FRONT SETBACK:	50'
SIDE SETBACK:	0'
REAR SETBACK:	0'
PARKING REQUIRED:	75
PARKING PROPOSED:	75
PRE-DEVELOPED SITE IMPERVIOUS AREA:	21,300 SQ. FT.
POST-DEVELOPED SITE IMPERVIOUS AREA:	56,600 SQ. FT.

SITE DEVELOPMENT PLANS FOR MARYVILLE RETAIL SITE

PREPARED FOR
MSM DEVELOPMENT, LLC

1421 W LAMAR ALEXANDER PKWY
TAX MAP 57 PARCEL 9.06
CITY OF MARYVILLE
9th CIVIL DISTRICT
BLOUNT COUNTY, TENNESSEE

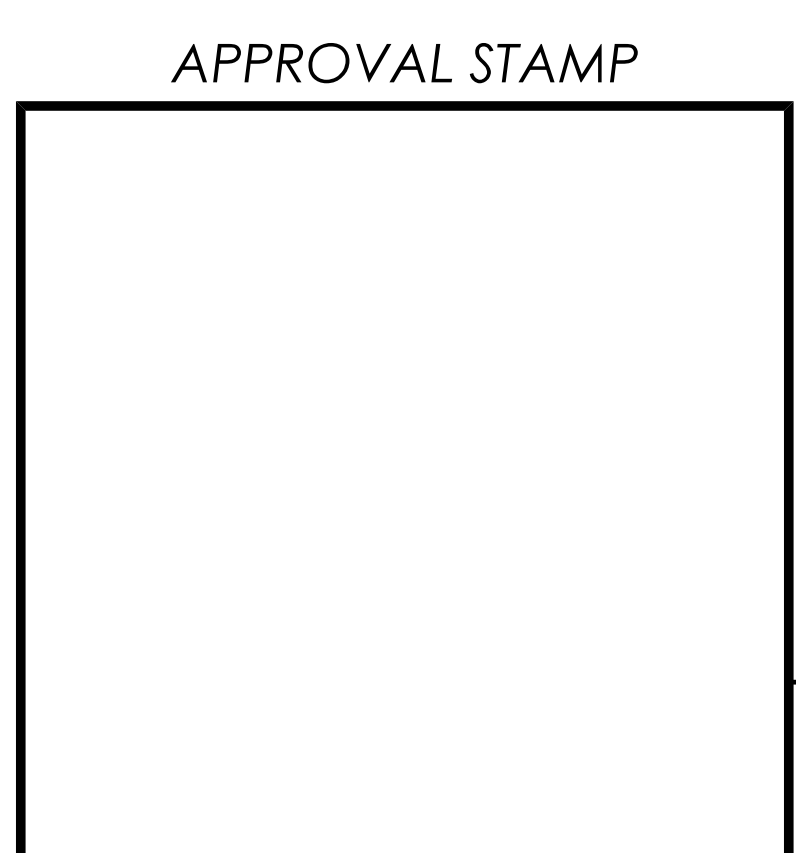
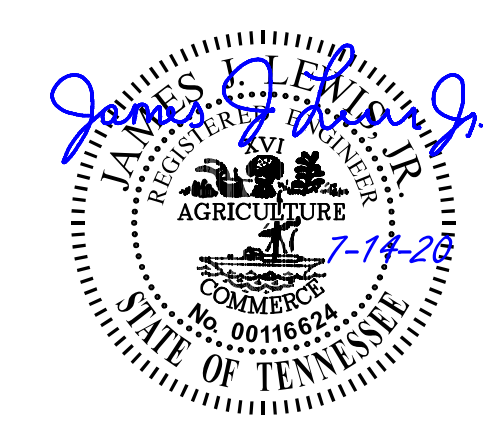


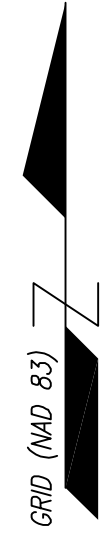
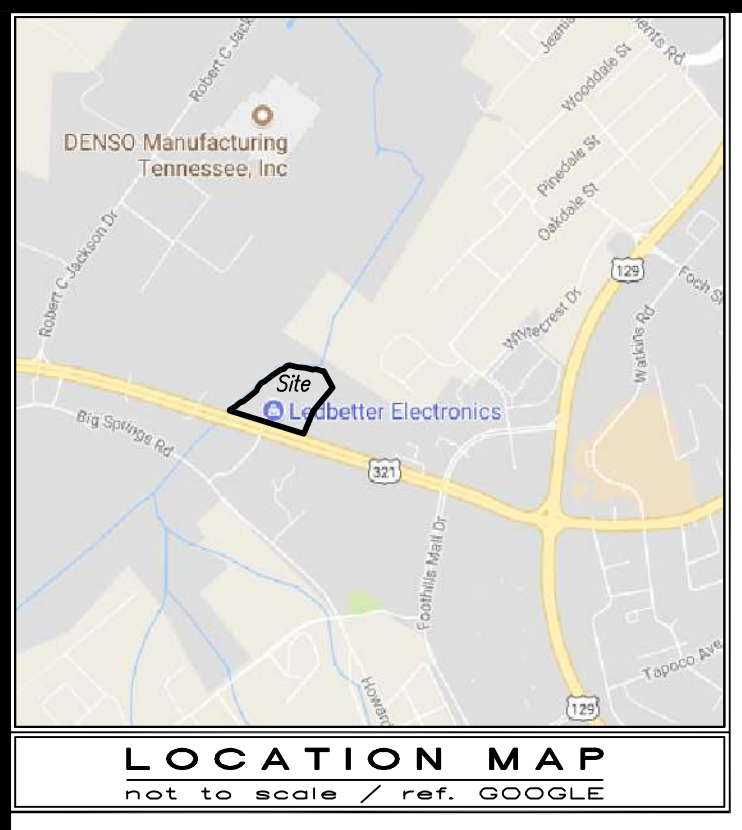
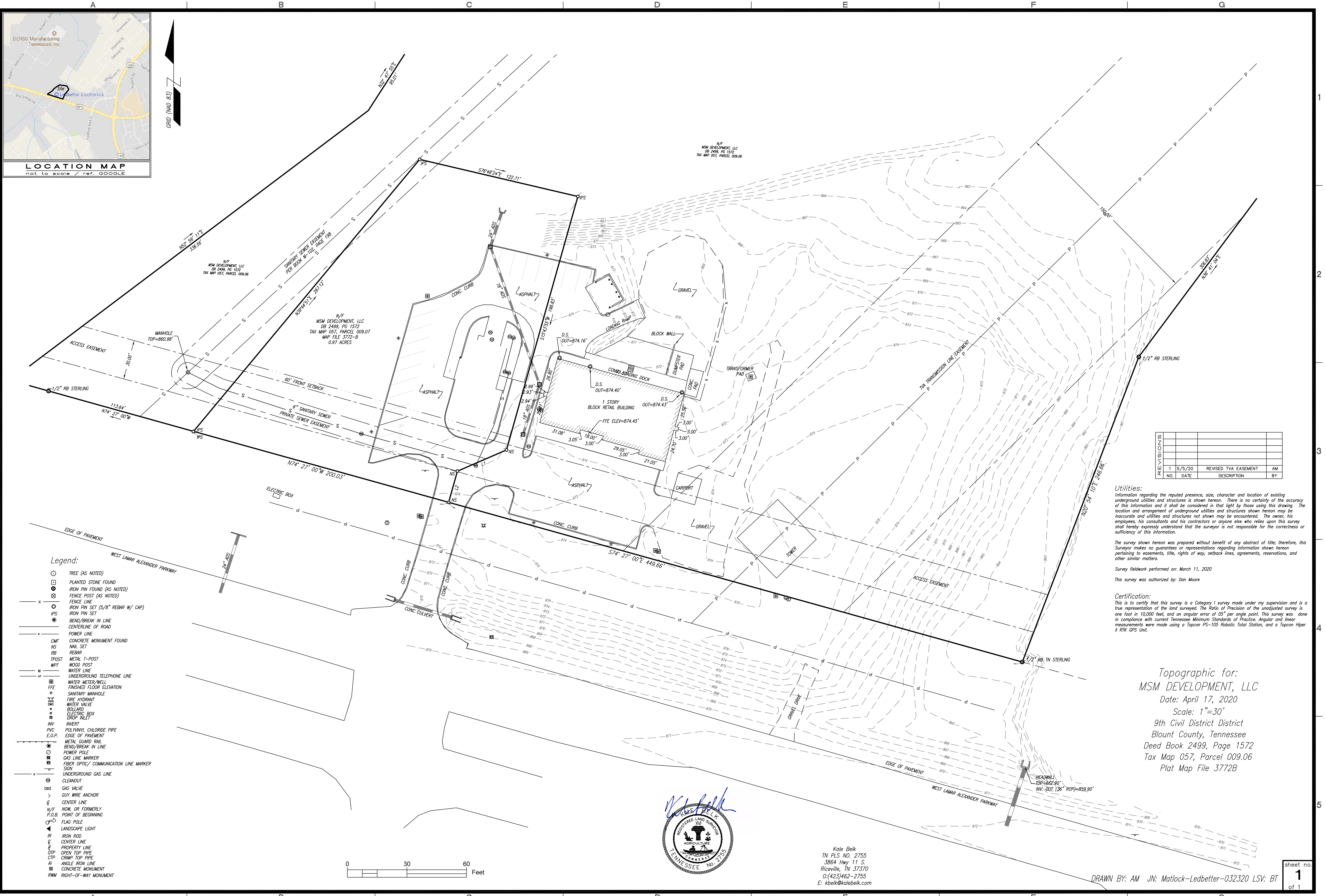
OWNER/DEVELOPER:
MSM DEVELOPMENT, LLC
ATTN: MARK MATLOCK
210 BANK ST
LENOIR CITY, TN 37771
(865) 986-7090

Engineer/Surveyor

**LAND
TECH**
CIVIL ENGINEERING
& LAND SURVEYING
100 McComey Road Knoxville, TN 37918
865.978.6510 www.landtechco.com

LANDTECH PROJECT NO. 2004019
LANDTECH DRAWING NO. D(O)263-R1
DRAWING DATE: JULY 14, 2020





NO.	DATE	DESCRIPTION	BY
1	5/5/20	REVISED TVA EASEMENT	AM

Utilities:
Information regarding the reputed presence, size, character and location of existing underground utilities and structures is shown hereon. There is no certainty of the accuracy of this information and it shall be considered in that light by those using this drawing. The location and arrangement of underground utilities and structures shown hereon may be inaccurate and utilities and structures not shown may be encountered. The owner, his employees, his consultants and his contractors or anyone else who relies upon this survey shall hereby expressly understand that the surveyor is not responsible for the correctness or sufficiency of this information.

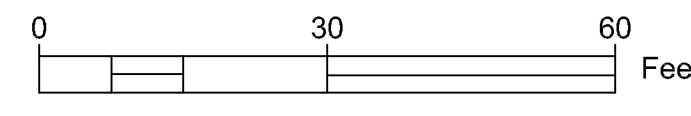
The survey shown hereon was prepared without benefit of any abstract of title; therefore, this Surveyor makes no guarantees or representations regarding information shown hereon pertaining to easements, title, rights of way, setback lines, agreements, reservations, and other similar matters.

Survey fieldwork performed on: March 11, 2020
This survey was authorized by: Dan Moore

Certification:
This is to certify that this survey is a Category I survey made under my supervision and is a true representation of the land surveyed. The Ratio of Precision of the unadjusted survey is one foot in 10,000 feet, and an angular error of 05" per angle point. This survey was done in compliance with current Tennessee Minimum Standards of Practice. Angular and linear measurements were made using a Topcon PS-105 Robotic Total Station, and a Topcon Hiper II RTK GPS Unit.

Topographic for:
MSM DEVELOPMENT, LLC
Date: April 17, 2020
Scale: 1"=30'
9th Civil District District
Blount County, Tennessee
Deed Book 2499, Page 1572
Tax Map 057, Parcel 009.06
Plat Map File 3772B

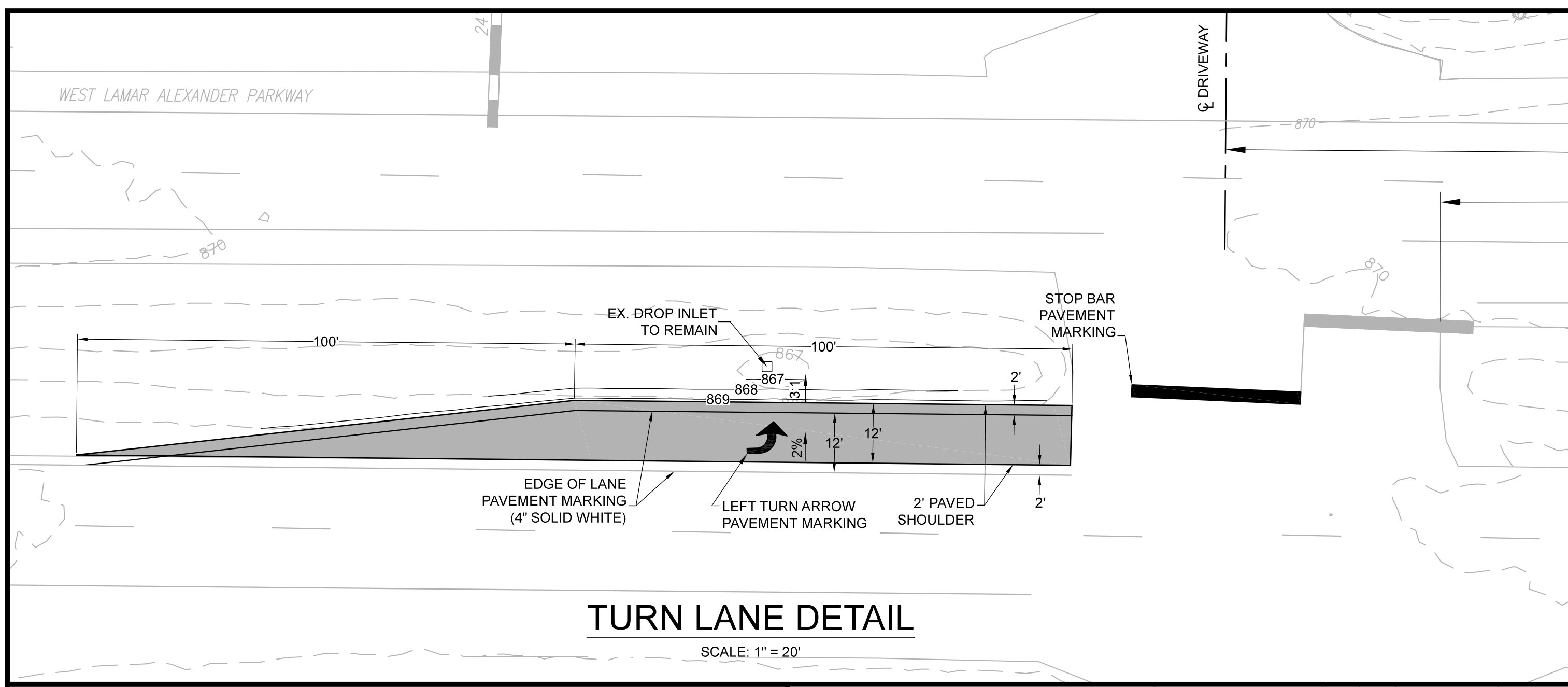
- Legend:**
- TREE (AS NOTED)
 - PLANTED STONE FOUND
 - IRON PIN FOUND (AS NOTED)
 - ⊗ FENCE POST (AS NOTED)
 - x — FENCE LINE
 - IRON PIN SET (5/8" REBAR W/ CAP)
 - IPS IRON PIN SET
 - ⊙ BEND/BREAK IN LINE
 - CENTERLINE OF ROAD
 - POWER LINE
 - CMF CONCRETE MONUMENT FOUND
 - NS NAIL SET
 - RB REBAR
 - MP METAL T-POST
 - WPT WOOD POST
 - W WATER LINE
 - UT UNDERGROUND TELEPHONE LINE
 - WM WATER METER/WELL
 - FTE FINISHED FLOOR ELEVATION
 - SANITARY MANHOLE
 - ⊗ FIRE HYDRANT
 - ⊗ WATER VALVE
 - BOLLARD
 - ELECTRIC BOX
 - DRIP WALE
 - INV INVERT
 - PVC POLYVINYL CHLORIDE PIPE
 - E.O.P. EDGE OF PAVEMENT
 - METAL GUARD RAIL
 - ⊙ BEND/BREAK IN LINE
 - POWER POLE
 - ⊗ GAS LINE MARKER
 - ⊗ FIBER OPTIC/ COMMUNICATION LINE MARKER
 - SIGN
 - UNDERGROUND GAS LINE
 - CLEANOUT
 - GAS VALVE
 - > GUY WIRE ANCHOR
 - CENTER LINE
 - N/W NEW OR FORMERLY
 - P.O.B. POINT OF BEGINNING
 - FLAG POLE
 - LANDSCAPE LIGHT
 - IR IRON ROD
 - CENTER LINE
 - PROPERTY LINE
 - TOP GREEN TOP PIPE
 - TOP CRAMP TOP PIPE
 - AI ANGLE IRON LINE
 - CONCRETE MONUMENT
 - R/W RIGHT-OF-WAY MONUMENT



Kale Belk
TN PLS NO. 2755
3864 Hwy 11 S.
Riceville, TN 37370
O: (423) 462-2755
E: kbelk@kalebelk.com

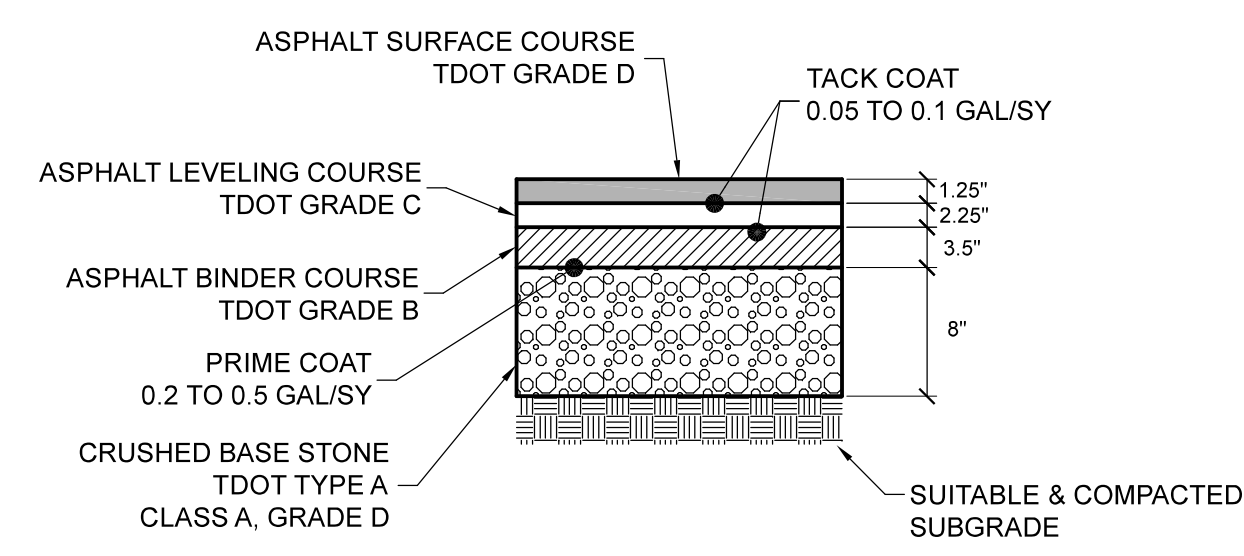
DRAWN BY: AM JN: Matlock-Ledbetter-032320 LSV: BT

Sheet no. 1 of 1

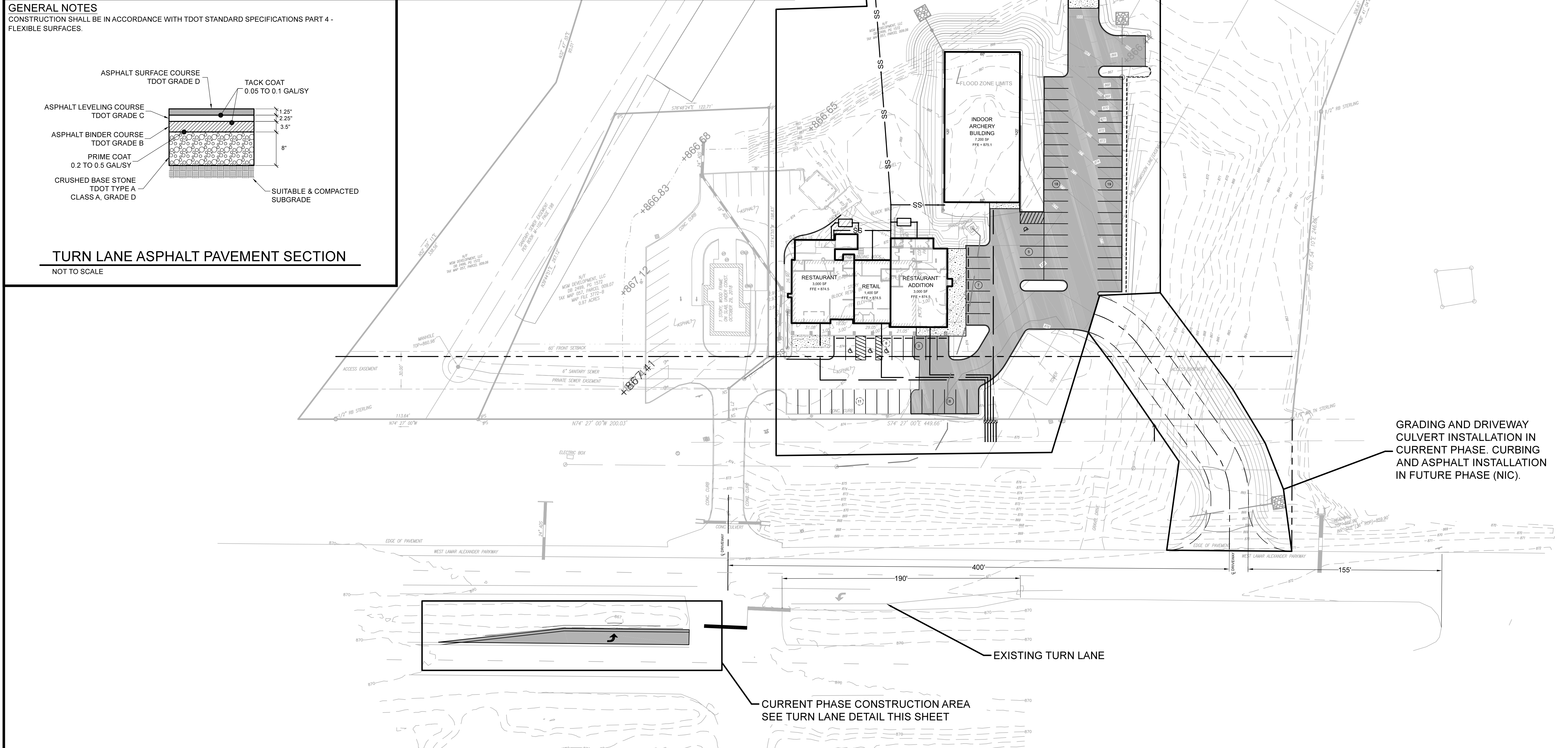


TURN LANE DETAIL
SCALE: 1" = 20'

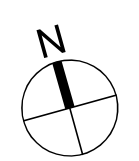
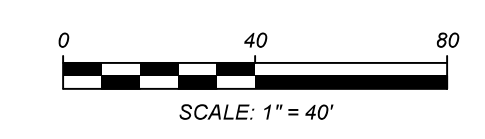
GENERAL NOTES
CONSTRUCTION SHALL BE IN ACCORDANCE WITH TDOT STANDARD SPECIFICATIONS PART 4 - FLEXIBLE SURFACES.



TURN LANE ASPHALT PAVEMENT SECTION
NOT TO SCALE



GRADING AND DRIVEWAY CULVERT INSTALLATION IN CURRENT PHASE. CURBING AND ASPHALT INSTALLATION IN FUTURE PHASE (NIC).



MARYVILLE RETAIL SITE
1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
PARCEL ID: MAP 57 PARCEL 9.06
CITY OF MARYVILLE
9th CIVIL DISTRICT
BLOUNT COUNTY, TENNESSEE

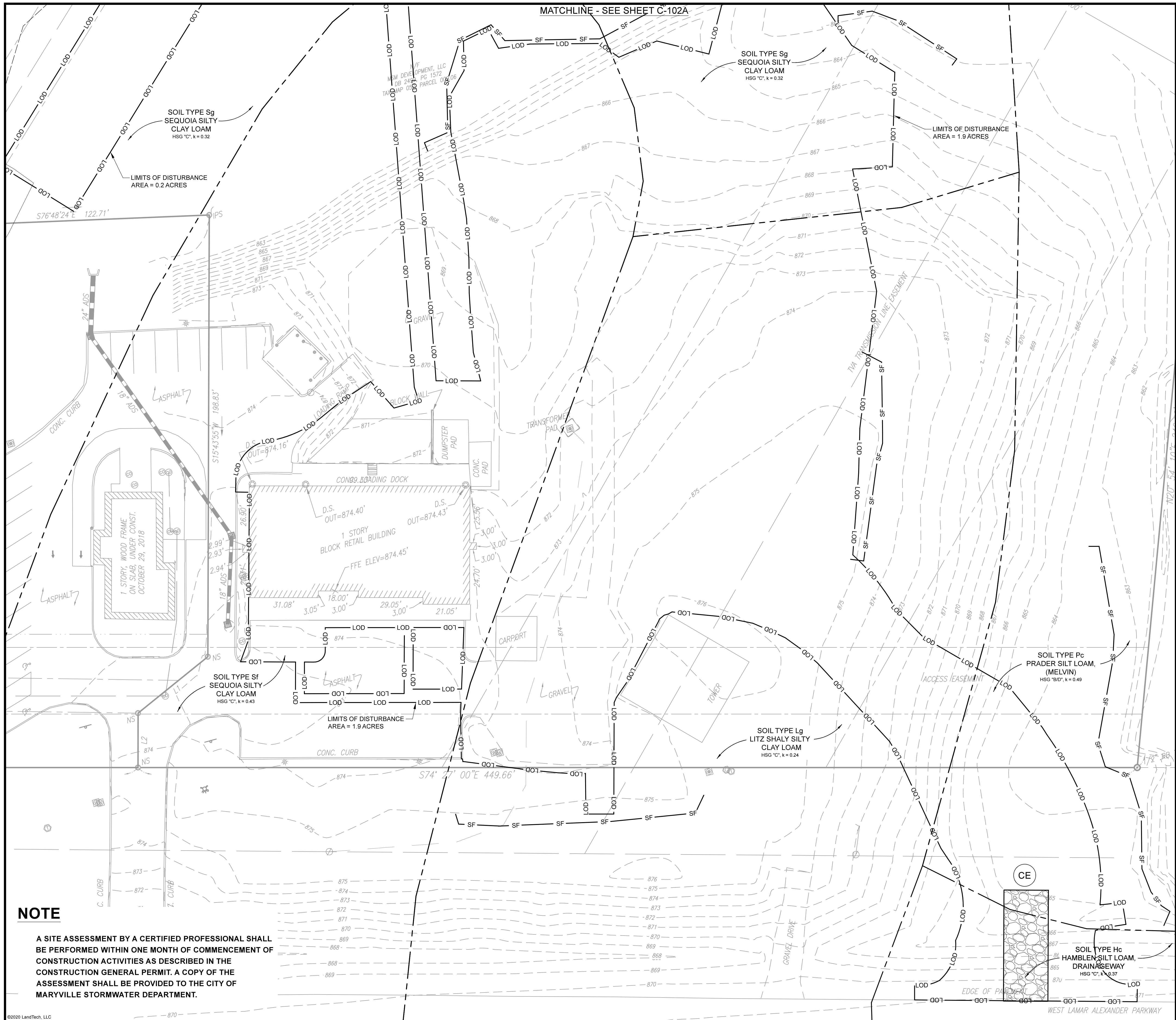
Project
Engineer/Surveyor
LAND TECH
CIVIL ENGINEERING & LAND SURVEYING
100 McCamy Road, Knoxville, TN 37918
865.978.6510 www.landtechco.com



No.	Date	Revision
1	10/23/20	REVISION COMMENTS FROM CITY, TDEC AND TDOT

Drawn By:	MBB
Checked By:	JLL
Approved By:	JLL
LT Project No.:	2004019
LT Drawing No.:	D(O)263-R1
Horiz. Scale:	1" = 40'
Date:	07/14/20

Sheet Title
Project Phasing Plan & Turn Lane Details
Sheet ID
C-101
Sheet No. 4



Sheet General Notes

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- REFER TO ADDITIONAL REQUIREMENTS IN THE EROSION PREVENTION AND SEDIMENT CONTROL PLANS, DETAILS, SPECIFICATIONS, AND STORMWATER POLLUTION PREVENTION PLANS (SWPPP), AS APPLICABLE.
- SOIL DATA BASED ON MAPPING PROVIDED BY U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE.
- ADEQUATE DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES, BEST MANAGEMENT PRACTICES, AND/OR OTHER STORMWATER MANAGEMENT FACILITIES SHALL BE PROVIDED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION. DAMAGES TO ADJACENT PROPERTY AND/OR THE CONSTRUCTION SITE CAUSED BY THE CONTRACTOR'S OR PROPERTY OWNER'S FAILURE TO PROVIDE AND MAINTAIN ADEQUATE DRAINAGE AND EROSION/SEDIMENT CONTROL FOR THE CONSTRUCTION AREA SHALL BE THE RESPONSIBILITY OF THE GRADING PERMITTEE.

MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
 CITY OF MARYVILLE
 9th CIVIL DISTRICT
 BLOUNT COUNTY, TENNESSEE

Project
 Engineer/Surveyor
LAND TECH
 CIVIL ENGINEERING & LAND SURVEYING
 100 McCampy Road, Knoxville, TN 37918
 865.978.6510 www.landtechco.com

Sequence of Construction

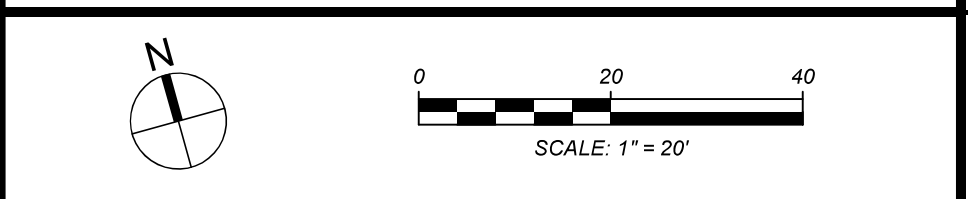
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- INSTALL INITIAL EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES BEFORE CLEARING, GRUBBING, EXCAVATION, GRADING, CUTTING, FILLING, OR ANY OTHER EARTHWORK OCCURS. EXCEPT AS SUCH WORK MAY BE NECESSARY TO INSTALL EPSC MEASURES.
- PERFORM CLEARING AND GRUBBING NOT MORE THAN 14 DAYS PRIOR TO GRADING OR EARTH MOVING.
- FLAG AND MARK THE LIMITS OF DISTURBANCE (LOD), CONSTRUCTION BUFFER ZONES, AND CONSTRUCTION STAGING AND STORAGE AREAS.
- INSTALL STABILIZED CONSTRUCTION EXIT.
- CLEAR A PATH FOR THE INSTALLATION OF SILT FENCE PERIMETER EPSC MEASURE. INSTALL SILT FENCE. EVALUATE EFFECTIVENESS AND ADJUST AS NEEDED.
- REMOVE AND STORE TOPSOIL. PROVIDE TEMPORARY SEEDING OR PERIMETER SILT FENCE AT SOIL STOCKPILES.
- STABILIZE DISTURBED AREAS WITHIN 14 DAYS OF COMPLETING ANY STAGE AND/OR PHASE OF ACTIVITY.
- REMOVE TEMPORARY EROSION CONTROLS AND ACCUMULATED SEDIMENT FROM AREAS THAT HAVE ESTABLISHED AT LEAST 70 PERCENT UNIFORM PERMANENT VEGETATIVE COVER.
- TDEC MAY CONDUCT ROUTINE INSPECTIONS OF EPSC MEASURES THROUGHOUT THE PERIOD OF CONSTRUCTION, AND INVESTIGATE COMPLAINTS OF EROSION OR SEDIMENTATION.

No.	Date	Revision	REVISION COMMENTS FROM CITY, TDEC AND TDOT
1	10/23/20		

Drawn By:	MBB
Checked By:	JLL
Approved By:	JLL
LT Project No.:	2004019
LT Drawing No.:	D(O)263-R1
Horiz. Scale:	1" = 20'
Date:	07/14/20

Legend

- SF SILT FENCE
- LOD LIMITS OF DISTURBANCE
- SOIL LIMITS
- CE CONSTRUCTION EXIT
- RIPRAP AREA



NOTE

A SITE ASSESSMENT BY A CERTIFIED PROFESSIONAL SHALL BE PERFORMED WITHIN ONE MONTH OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES AS DESCRIBED IN THE CONSTRUCTION GENERAL PERMIT. A COPY OF THE ASSESSMENT SHALL BE PROVIDED TO THE CITY OF MARYVILLE STORMWATER DEPARTMENT.

Erosion Control Plan Stage 1

Sheet ID
C-102
 Sheet No. 5



NOTE

A SITE ASSESSMENT BY A CERTIFIED PROFESSIONAL SHALL BE PERFORMED WITHIN ONE MONTH OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES AS DESCRIBED IN THE CONSTRUCTION GENERAL PERMIT. A COPY OF THE ASSESSMENT SHALL BE PROVIDED TO THE CITY OF MARYVILLE STORMWATER DEPARTMENT.

Sheet General Notes

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10. SOIL DATA BASED ON MAPPING PROVIDED BY U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE.
11. ADEQUATE DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES, BEST MANAGEMENT PRACTICES, AND/OR OTHER STORMWATER MANAGEMENT FACILITIES SHALL BE PROVIDED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION. DAMAGES TO ADJACENT PROPERTY AND/OR THE CONSTRUCTION SITE CAUSED BY THE CONTRACTOR'S OR PROPERTY OWNER'S FAILURE TO PROVIDE AND MAINTAIN ADEQUATE DRAINAGE AND EROSION/SEDIMENT CONTROL FOR THE CONSTRUCTION AREA SHALL BE THE RESPONSIBILITY OF THE GRADING PERMITTEE.

Sequence of Construction

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Legend

- SF — SILT FENCE
- LOD — LIMITS OF DISTURBANCE
- SOIL LIMITS
- ⊙ CE CONSTRUCTION EXIT
- ▣ RIPRAP AREA



MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
 CITY OF MARYVILLE
 9th CIVIL DISTRICT
 BLOUNT COUNTY, TENNESSEE

Project

Engineer/Surveyor

LAND TECH
 CIVIL ENGINEERING & LAND SURVEYING
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1	10/23/20		

Drawn By:	MBB
Checked By:	JLL
Approved By:	JLL
LT Project No.:	2004019
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Horiz. Scale:	1" = 20'
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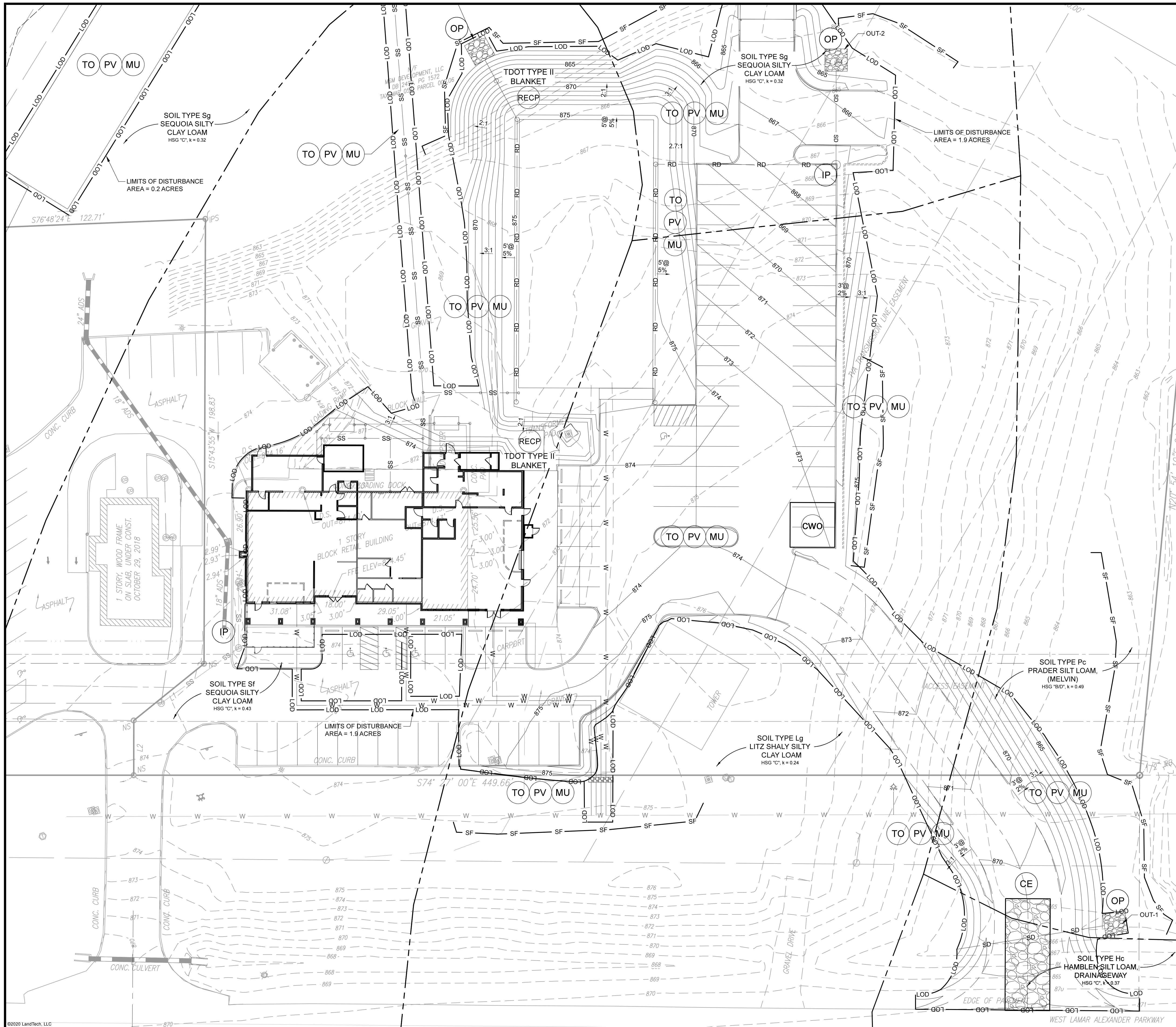
Sheet Title

Erosion Control Plan Stage 1

Sheet ID

C-102A

Sheet No. 5A



Sheet General Notes

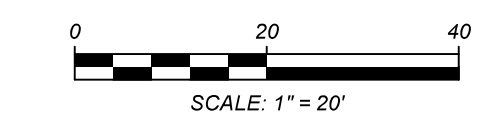
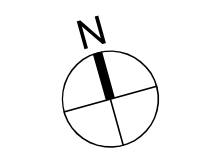
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- REFER TO ADDITIONAL REQUIREMENTS IN THE EROSION PREVENTION AND SEDIMENT CONTROL PLANS, DETAILS, SPECIFICATIONS, AND STORMWATER POLLUTION PREVENTION PLANS (SWPPP), AS APPLICABLE.
- SOIL DATA BASED ON MAPPING PROVIDED BY U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE.
- ADEQUATE DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES, BEST MANAGEMENT PRACTICES, AND/OR OTHER STORMWATER MANAGEMENT FACILITIES SHALL BE PROVIDED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION. DAMAGES TO ADJACENT PROPERTY AND/OR THE CONSTRUCTION SITE CAUSED BY THE CONTRACTOR'S OR PROPERTY OWNER'S FAILURE TO PROVIDE AND MAINTAIN ADEQUATE DRAINAGE AND EROSION/SEDIMENT CONTROL FOR THE CONSTRUCTION AREA SHALL BE THE RESPONSIBILITY OF THE GRADING PERMITTEE.

Sequence of Construction

- PROCEED WITH SITE GRADING AND CONSTRUCTION WORK, INSTALLING EPSC MEASURES AT THE EARLIEST TIME POSSIBLE DURING GRADING ACTIVITIES. ESTABLISH EITHER TEMPORARY OR PERMANENT VEGETATION ON ALL DISTURBED AREAS WITHIN 14 DAYS OF COMPLETING GRADING WITHIN THE DISTURBED AREA. PROVIDE TEMPORARY SEEDING ON TEMPORARY SOIL STOCKPILES.
- INSTALL STORM DRAINS, CULVERTS AND UTILITIES.
- INSTALL PIPE INLET AND OUTLET PROTECTION ONCE STRUCTURES ARE IN PLACE AND CAPABLE OF INTERCEPTING FLOW.
- PERFORM FINAL GRADING AND INSTALL BASE STONE.
- COMPLETE FINAL STABILIZATION (TOPSOIL, SEEDING, MULCH, EROSION CONTROL BLANKETS, SOD, ETC.)
- REMOVE TEMPORARY EROSION CONTROLS AND ACCUMULATED SEDIMENT FROM AREAS THAT HAVE ESTABLISHED AT LEAST 70 PERCENT UNIFORM PERMANENT VEGETATIVE COVER.
- RE-STABILIZE AREAS DISTURBED BY REMOVAL ACTIVITIES.
- TDEC MAY CONDUCT ROUTINE INSPECTIONS OF EPSC MEASURES THROUGHOUT THE PERIOD OF CONSTRUCTION, AND INVESTIGATE COMPLAINTS OF EROSION OR SEDIMENTATION.
- A FINAL AS-BUILT INSPECTION AND REVIEW WILL BE PERFORMED AT THE PROJECT SITE PRIOR TO RELEASE OR REDUCTION OF A CONSTRUCTION BOND.

Legend

- SF SILT FENCE
- LOD LIMITS OF DISTURBANCE
- SOIL LIMITS
- RIPRAP AREA
- CE CONSTRUCTION EXIT
- TO TOPSOIL
- IP INLET PROTECTION
- OP OUTLET PROTECTION
- PV PERMANENT VEGETATION
- CWO CONCRETE WASHOUT
- MU MULCH
- RECP ROLLED EROSION CONTROL PRODUCTS



MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
 CITY OF MARYVILLE
 9th CIVIL DISTRICT
 BLOUNT COUNTY, TENNESSEE

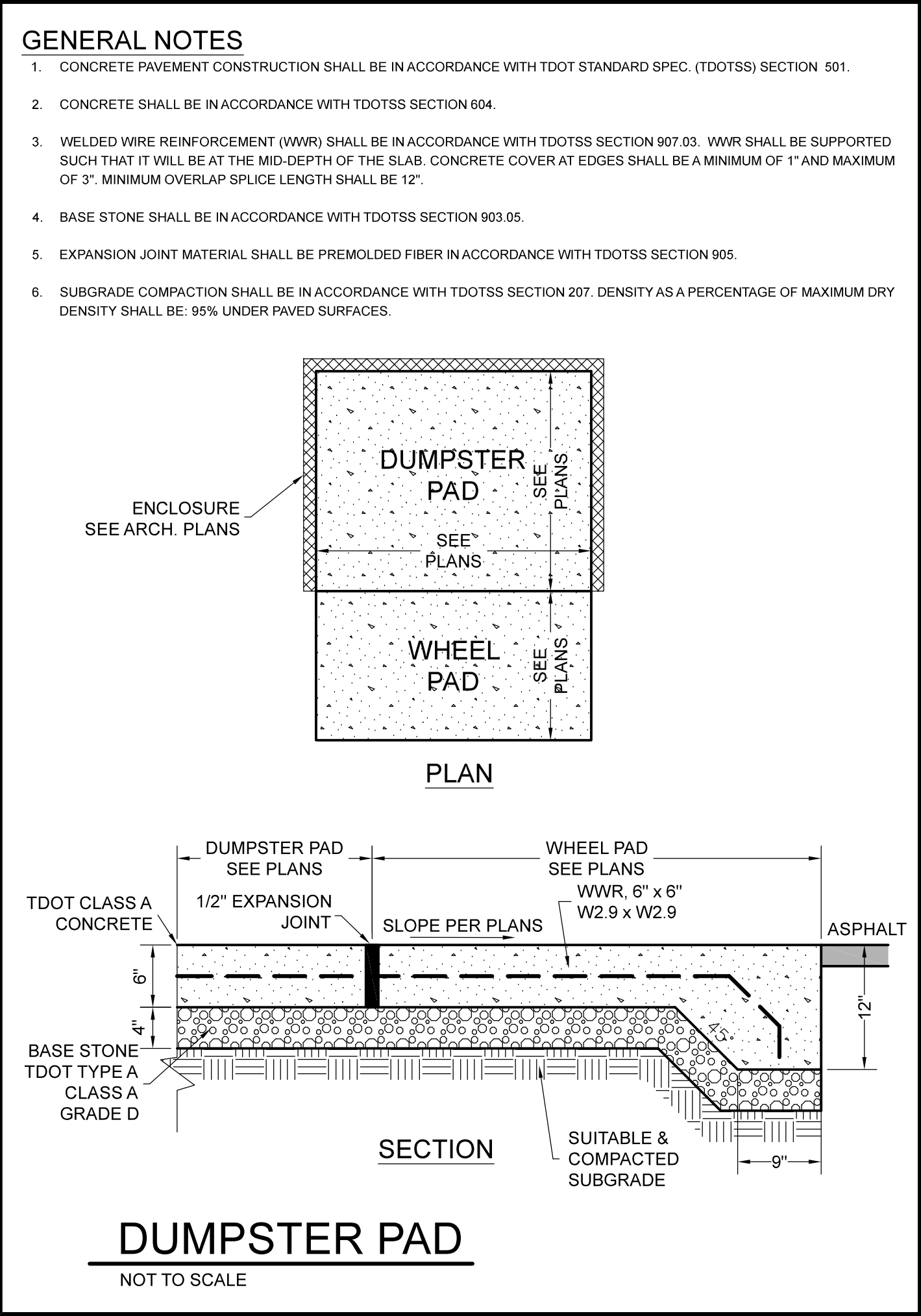
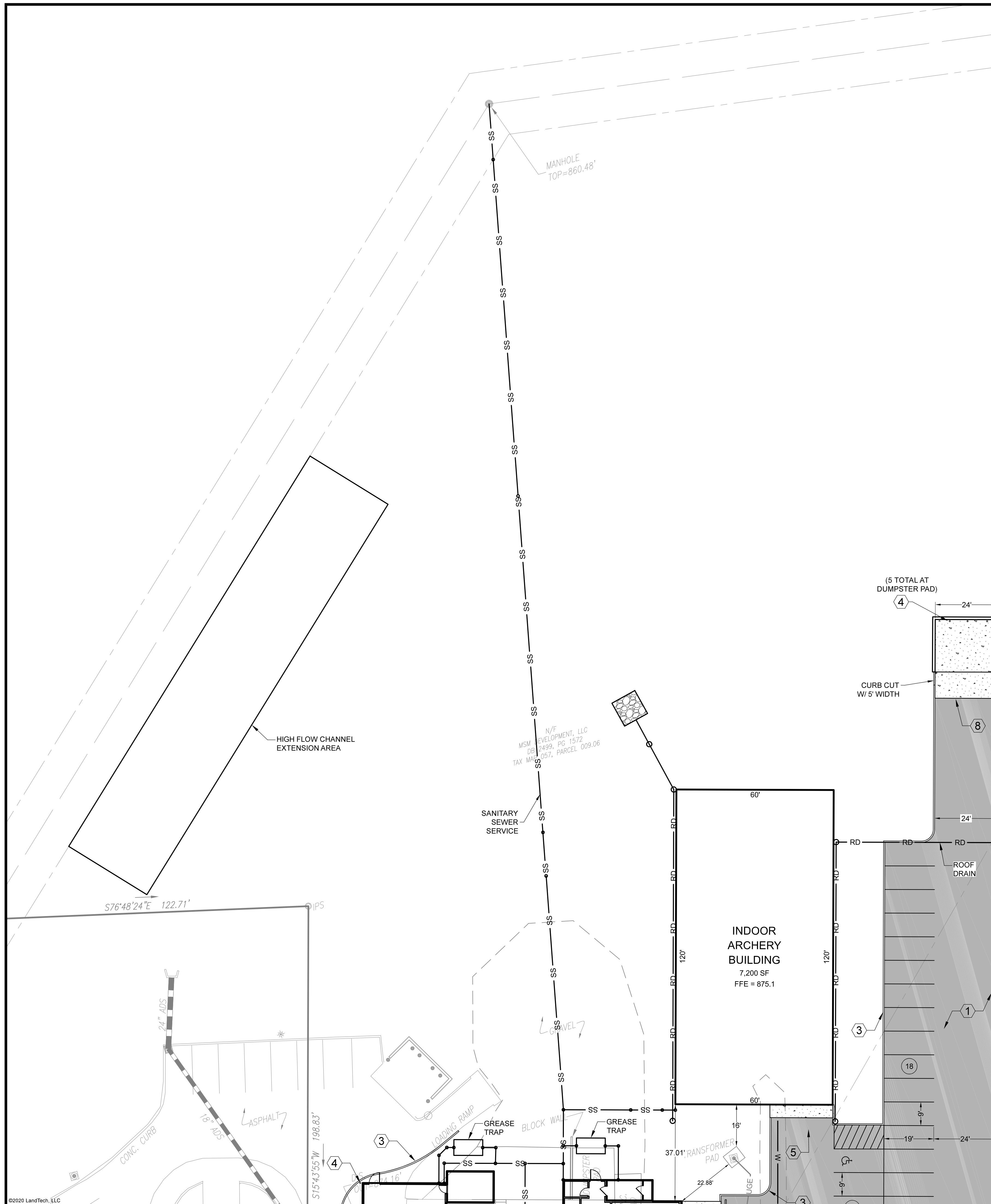
Project
 Engineer/Surveyor
LAND TECH
 CIVIL ENGINEERING & LAND SURVEYING
 100 McCamoy Road, Knoxville, TN 37918
 865.978.6510 www.landtechco.com



No.	Date	Revision	REVISION COMMENTS FROM CITY, TDEC AND TDOT
1	10/23/20		

Drawn By:	MBB
Checked By:	JLL
Approved By:	JLL
LT Project No.:	2004019
LT Drawing No.:	D(O)263-R1
Horiz. Scale:	1" = 20'
Date:	07/14/20

Sheet Title
Erosion Control Plan Stage 2
 Sheet ID
C-103
 Sheet No. 6



Sheet General Notes

- ASPHALT PAVING CONSTRUCTION SHALL BE IN ACCORDANCE WITH TDOTSS PART 4 - FLEXIBLE SURFACES.
- CURB CONSTRUCTION SHALL BE IN ACCORDANCE WITH TDOTSS 702 - CEMENT CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER.
- SIDEWALK CONSTRUCTION SHALL BE IN ACCORDANCE WITH TDOTSS 701 - CEMENT CONCRETE SIDEWALKS, DRIVEWAYS, AND MEDIAN PAVEMENT.
- PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH TDOTSS 716 - PAVEMENT MARKINGS.
- BOLLARD CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF KNOXVILLE TECHNICAL SPECIFICATIONS SECTION 50.0 - BOLLARDS.
- SIGNAGE CONSTRUCTION SHALL BE IN ACCORDANCE WITH TDOTSS SECTION 916 - HIGHWAY SIGNING MATERIALS.
- CONTRACTOR SHALL REFER TO THE LATEST EDITIONS OF TDOT STANDARD SPECIFICATIONS AND THE CITY OF MARYVILLE TECHNICAL SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS, AS APPLICABLE.
- DIMENSIONS ARE TO FACE OF CURB, BUILDING, OR STRUCTURE, UNLESS OTHERWISE INDICATED.
- SETBACK LINES SHOWN ON THESE PLANS ARE TAKEN FROM APPLICABLE GOVERNMENT ZONING REGULATIONS AND DO NOT NECESSARILY REFLECT ANY SETBACK REQUIREMENTS THAT MAY BE FOUND UNDER PRIVATE RESTRICTIVE COVENANTS.

MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
 CITY OF MARYVILLE
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 BLOUNT COUNTY, TENNESSEE

Sheet Keynotes

KEYNOTE No.	DETAIL SHEET No.	DESCRIPTION
1	C-407	ASPHALT PAVEMENT - STANDARD DUTY
2	C-407	CONCRETE WHEEL STOP
3	C-407	EXTRUDED CONCRETE CURB
4	C-407	CONCRETE PIPE BOLLARD
5	C-407	CONCRETE SIDEWALK
6	C-407	PARKING SPACE LAYOUT
7	C-407	HANDICAP PARKING SIGN
8	C-104A	DUMPSTER PAD

Engineer/Surveyor

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 100 McCamp Road, Knoxville, TN 37918
 865.978.6510 www.landtechco.com

James J. Johnson, Jr.
 REGISTERED PROFESSIONAL ENGINEER
 No. 00118621
 STATE OF TENNESSEE
 7-14-20

PARKING REQUIREMENT

- RESTAURANT AREA = 3,000 SF + 3,000 SF = 6,000 SF
 PARKING SPACES REQD = 6,000 SF ÷ 100 SF / SPACE = 60 SPACES
- RETAIL AREA = 1,400 SF ÷ 200 SF / SPACE = 7 SPACES
- INDOOR ARCHERY BUILDING
 RETAIL AREA = 60' x 20' = 1,200 SF ÷ 200 SF / SPACE = 6 SPACES
 ARCHERY RANGE = 60' WIDTH ÷ 10 FT WIDTH PER SHOOTING LANE = 6 LANES ÷ 3 LANES / SPACE = 2 SPACES

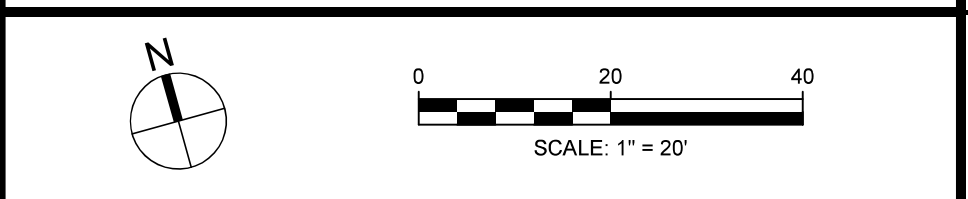
TOTAL PARKING SPACES REQD = 60 + 7 + 6 + 2 = 75 SPACES
 TOTAL PARKING SPACES PROVIDED = 75 SPACES

No.	Date	Revision	REVISION COMMENTS FROM CITY, TDEC AND TDOT
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Legend

- RIPRAP AREA
- CONCRETE
- ASPHALT
- SETBACK LINE
- RD - ROOF DRAIN PIPE
- SD - STORM DRAIN PIPE
- SS - SANITARY SEWER PIPE
- W - WATER LINE
- FLOODWAY / FLOOD ZONE
- # - # PARKING SPACES

Drawn By: MBB
 Checked By: JLL
 Approved By: JLL
 LT Project No.: 2004019
 LT Drawing No.: D(O)263-R1
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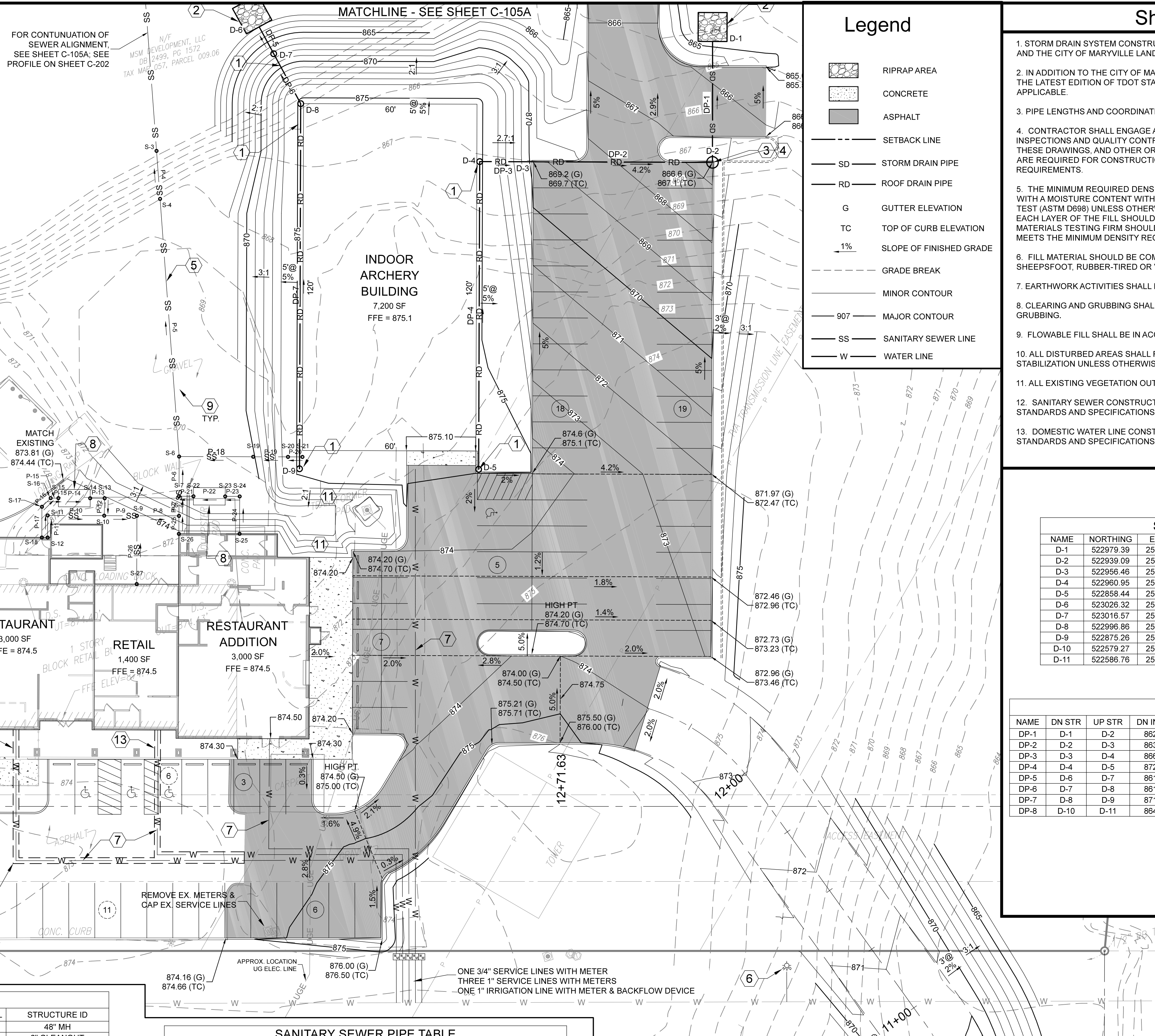


Sheet ID
C-104A
 Sheet No. 7A

NOTES

- CONTRACTOR SHALL HAVE AN APPROVED STAMPED AND SIGNED COPY OF THE SITE PLANS ON-SITE TO WORK FROM.
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- ALL STORMWATER PIPES AND STRUCTURES REQUIRE INSPECTION BEFORE COVERING. CONTACT DOUG CHAPMAN FOR INSPECTION AT (865) 273-3518.
- AS-BUILT DRAWINGS WILL BE REQUIRED FOR ALL STORMWATER INFRASTRUCTURE INSTALLED AS PART OF THIS PROJECT. AS-BUILT DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED WITH A COMPLETED AS-BUILT CHECKLIST FOUND IN APPENDIX C SHEETS C-1 THROUGH C-3 OF THE CITY OF MARYVILLE STORMWATER QUALITY POLICY MANUAL. AS-BUILT INFORMATION SHALL BE SUBMITTED AS ONE HARD COPY AND ONE DIGITAL FORMAT.
- IF THE PROPERTY IS SUBDIVIDED THE PROPOSED SIX INCH SEWER SERVICE WILL NEED TO BE REPLACED WITH AN EIGHT INCH SEWER MAIN BEFORE THE PLAT CAN BE SIGNED.
- ANY EXISTING UTILITY STRUCTURES SHALL BE BROUGHT INTO CONFORMANCE WITH FINISH GRADE IN ACCORDANCE WITH RULES, RATES, AND POLICIES OF THE CITY OF MARYVILLE WATER QUALITY CONTROL DEPARTMENT PRIOR TO ACCEPTANCE OF THE PROJECT. CONTACT STACY FRYE (865-273-3344) OF TOM BIBLE (865-273-3323) FOR INSPECTION OF NEW INSTALLATION OR FOR ANY ADJUSTMENT.

FOR CONTINUATION OF SEWER ALIGNMENT, SEE SHEET C-105A. SEE PROFILE ON SHEET C-202



Legend

- RIPRAP AREA
- CONCRETE
- ASPHALT
- SETBACK LINE
- SD STORM DRAIN PIPE
- RD ROOF DRAIN PIPE
- G GUTTER ELEVATION
- TC TOP OF CURB ELEVATION
- 1% SLOPE OF FINISHED GRADE
- GRADE BREAK
- MINOR CONTOUR
- 907 MAJOR CONTOUR
- SS SANITARY SEWER LINE
- W WATER LINE

Sheet General Notes

- STORM DRAIN SYSTEM CONSTRUCTION SHALL BE IN ACCORDANCE WITH TDOTSS PART 6 - STRUCTURES AND THE CITY OF MARYVILLE LAND DEVELOPMENT AND PUBLIC WORKS STANDARDS.
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- SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF MARYVILLE STANDARDS AND SPECIFICATIONS.
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MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
 CITY OF MARYVILLE
 9th CIVIL DISTRICT
 BLOUNT COUNTY, TENNESSEE

STORM STRUCTURE TABLE

NAME	NORTHING	EASTING	RIM EL	INV IN EL	INV OUT EL	STRUCTURE ID
D-1	522979.39	2560722.36	N/A	862.51	N/A	PIPE OUTLET
D-2	522939.09	2560711.11	866.60	863.68	862.93	CATCH BASIN
D-3	522956.46	2560649.49	870.50	866.71	866.71	6" CLEANOUT
D-4	522960.95	2560633.56	875.12	872.23	872.23	6" CLEANOUT
D-5	522858.44	2560604.67	875.32	N/A	873.30	6" CLEANOUT
D-6	523026.32	2560572.53	N/A	861.75	N/A	PIPE OUTLET
D-7	523016.57	2560574.76	867.00	861.85	861.85	6" CLEANOUT
D-8	522996.86	2560579.27	875.05	871.29	871.29	6" CLEANOUT
D-9	522875.25	2560544.99	875.05	N/A	872.55	6" CLEANOUT
D-10	522579.27	2560735.51	N/A	864.80	N/A	PIPE OUTLET
D-11	522586.76	2560669.12	N/A	N/A	866.46	PIPE OUTLET

STORM PIPE TABLE

NAME	DN STR	UP STR	DN INV EL	UP INV EL	LENGTH (FT)	SLOPE (%)	MATERIAL	DIA (IN)
DP-1	D-1	D-2	862.51	862.93	41.84	1.00	HDPE	15
DP-2	D-2	D-3	863.68	866.71	64.02	4.73	HDPE	6
DP-3	D-3	D-4	866.71	872.23	16.55	33.39	HDPE	6
DP-4	D-4	D-5	872.23	873.30	106.50	1.00	HDPE	6
DP-5	D-6	D-7	861.75	861.85	10.00	1.00	HDPE	6
DP-6	D-7	D-8	861.85	871.29	20.22	46.68	HDPE	6
DP-7	D-8	D-9	871.29	872.55	126.34	1.00	HDPE	6
DP-8	D-10	D-11	864.80	866.46	66.81	2.48	CMP	18

Sheet Keynotes

KEYNOTE No.	DETAIL SHEET No.	DESCRIPTION
1	C-407	ROOF DRAIN WITH CLEANOUT
2	C-408	RIPRAP OUTLET PROTECTION
3	C-408	48" ROUND CATCH BASIN
4	C-408	NEENAH R3246-AL GRATE
5	C-409	SEWER TRENCH
6	C-410	FIRE HYDRANT
7	C-410	WATER LINE TRENCH
8	C-411	GREASE TRAP - 1500 GALLON
9	C-411	CLEANOUT
10	C-411	FLEXIBLE PIPE BEDDING
11	C-411	ROLLED EROSION CONTROL PRODUCTS
12	C-411	ASPHALT TRENCH PATCH
13	C-411	CONCRETE TRENCH PATCH

SANITARY SEWER STRUCTURE TABLE

NAME	NORTHING	EASTING	RIM EL	INV IN EL	INV OUT EL	STRUCTURE ID
EX CITY MH 57G-3	523267.61	2560581.48	860.48	847.70	846.68	48" MH
S-1	523246.73	2560577.30	861.50	855.77	855.77	6" CLEANOUT
S-2	523120.61	2560552.05	861.27	857.05	857.05	6" CLEANOUT
S-3	522994.49	2560526.81	861.32	858.34	858.34	6" CLEANOUT
S-4	522978.16	2560523.54	868.50	864.95	864.95	6" CLEANOUT
S-6	522890.51	2560505.99	870.36	866.82	866.83	6" CLEANOUT
S-7	522877.28	2560502.26	871.40	867.74	867.74	6" CLEANOUT
S-8	522870.73	2560500.42	872.42	869.42	869.42	6" CLEANOUT
S-9	522874.68	2560486.42	874.08	871.08	871.08	6" CLEANOUT
S-10	522877.75	2560475.53	874.34	871.26	871.26	6" CLEANOUT
S-11	522883.05	2560456.71	874.46	871.45	871.45	6" CLEANOUT
S-12	522875.71	2560454.63	874.50	N/A	872.00	6" CLEANOUT
S-13	522883.49	2560477.27	874.04	871.52	871.52	6" CLEANOUT
S-14	522884.85	2560472.46	874.15	871.57	871.57	GREASE TRAP OUTLET
S-15	522887.83	2560461.87	874.40	871.82	871.82	GREASE TRAP INLET
S-16	522888.56	2560459.30	874.39	871.85	871.85	6" CLEANOUT
S-17	522886.48	2560455.59	874.41	871.89	871.89	6" CLEANOUT
S-18	522876.25	2560452.71	874.50	N/A	872.00	6" CLEANOUT
S-19	522883.55	2560530.68	869.82	867.08	867.08	6" CLEANOUT
S-20	522880.29	2560542.25	874.85	870.93	870.93	6" CLEANOUT
S-21	522878.93	2560547.06	875.10	N/A	870.98	6" CLEANOUT
S-22	522875.93	2560507.08	870.63	867.79	867.79	GREASE TRAP OUTLET
S-23	522872.94	2560517.86	870.53	868.04	868.04	GREASE TRAP INLET
S-24	522871.59	2560522.48	870.43	868.09	868.09	6" CLEANOUT
S-25	522859.13	2560518.97	874.50	N/A	872.00	6" CLEANOUT
S-26	522865.71	2560499.00	874.50	N/A	872.00	6" CLEANOUT
S-27	522851.93	2560480.01	874.50	N/A	872.00	6" CLEANOUT

SANITARY SEWER PIPE TABLE

NAME	DN STR	UP STR	DN INV EL	UP INV EL	LENGTH (FT)	SLOPE (%)	MATERIAL	DIA (IN)
P-1	EX-MH1	S-1	847.70	855.77	21.29	37.89	PVC	6
P-2	S-1	S-2	855.77	857.05	128.62	1.00	PVC	6
P-3	S-2	S-3	857.05	858.34	128.62	1.00	PVC	6
P-4	S-3	S-4	858.34	864.95	16.65	39.73	PVC	6
P-5	S-4	S-6	864.95	866.83	89.39	2.10	PVC	6
P-6	S-6	S-7	866.82	867.74	13.7	6.68	PVC	6
P-7	S-7	S-8	867.74	869.42	6.8	24.66	PVC	6
P-8	S-8	S-9	869.42	871.08	14.5	11.37	PVC	6
P-9	S-9	S-10	871.08	871.26	11.3	1.60	PVC	6
P-10	S-10	S-11	871.26	871.45	19.6	1.00	PVC	6
P-11	S-11	S-12	871.45	872.00	7.6	7.21	PVC	6
P-12	S-10	S-13	871.26	871.52	6.0	4.47	PVC	6
P-13	S-13	S-14	871.52	871.57	5.0	1.00	PVC	6
P-15	S-15	S-16	871.82	871.85	2.7	1.00	PVC	6
P-16	S-16	S-17	871.85	871.89	4.2	1.00	PVC	6
P-17	S-17	S-18	871.89	872.00	10.6	1.00	PVC	6
P-18	S-6	S-19	866.82	867.08	25.7	1.00	PVC	6
P-19	S-19	S-20	867.08	870.93	12.0	32.06	PVC	6
P-20	S-20	S-21	870.93	870.98	5.0	1.00	PVC	6
P-21	S-7	S-22	867.74	867.79	5.0	1.00	PVC	6
P-23	S-23	S-24	868.04	868.09	5.0	1.00	PVC	6
P-24	S-24	S-25	868.09	872.00	12.9	30.22	PVC	6
P-25	S-8	S-26	869.42	872.00	5.2	49.43	PVC	6
P-26	S-9	S-27	871.08	872.00	23.6	3.91	PVC	6

Project

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 Horiz. Scale: 1" = 20'
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Sheet Title
Grading, Drainage & Utility Plan

Sheet ID
C-105
 Sheet No. 8

Sheet General Notes

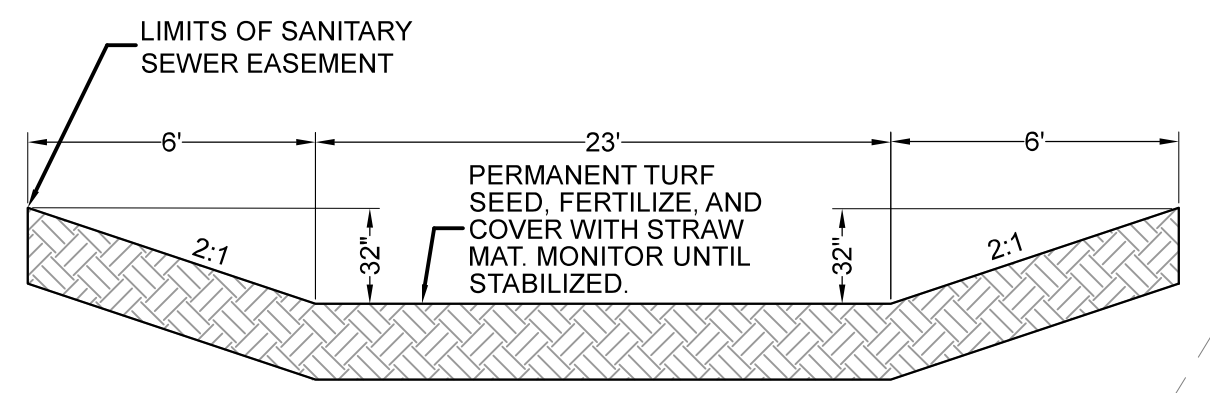
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Legend

- RIPRAP AREA
- CONCRETE
- ASPHALT
- SETBACK LINE
- STORM DRAIN PIPE
- ROOF DRAIN PIPE
- GUTTER DRAINAGE
- TOP OF CURB ELEVATION
- SLOPE OF FINISHED GRADE
- GRADE BREAK
- MINOR CONTOUR
- MAJOR CONTOUR
- SANITARY SEWER LINE
- WATER LINE

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- ALL STORMWATER PIPES AND STRUCTURES REQUIRE INSPECTION BEFORE COVERING. CONTACT DOUG CHAPMAN FOR INSPECTION AT (865) 273-3518.
- AS-BUILT DRAWINGS WILL BE REQUIRED FOR ALL STORMWATER INFRASTRUCTURE INSTALLED AS PART OF THIS PROJECT. AS-BUILT DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED WITH A COMPLETED AS-BUILT CHECKLIST FOUND IN APPENDIX C SHEETS C-1 THROUGH C-3 OF THE CITY OF MARYVILLE STORMWATER QUALITY POLICY MANUAL. AS-BUILT INFORMATION SHALL BE SUBMITTED AS ONE HARD COPY AND ONE DIGITAL FORMAT.
- IF THE PROPERTY IS SUBDIVIDED THE PROPOSED SIX INCH SEWER SERVICE WILL NEED TO BE REPLACED WITH AN EIGHT INCH SEWER MAIN BEFORE THE PLAT CAN BE SIGNED.
- ANY EXISTING UTILITY STRUCTURES SHALL BE BROUGHT INTO CONFORMANCE WITH FINISH GRADE IN ACCORDANCE WITH RULES, RATES, AND POLICIES OF THE CITY OF MARYVILLE WATER QUALITY CONTROL DEPARTMENT PRIOR TO ACCEPTANCE OF THE PROJECT. CONTACT STACY FRYE (865-273-3344) OF TOM BIBLE (865-273-3323) FOR INSPECTION OF NEW INSTALLATION OR FOR ANY ADJUSTMENT.



HIGH FLOW CHANNEL
NOT TO SCALE

FOR CONTINUATION OF SEWER ALIGNMENT, SEE SHEET C-105A; SEE PROFILE ON SHEET C-202

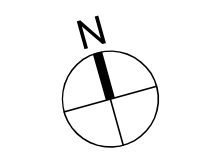
INDOOR ARCHERY BUILDING
7,200 SF
FFE = 875.1

STORM STRUCTURE TABLE						
NAME	NORTHING	EASTING	RIM EL	INV IN EL	INV OUT EL	STRUCTURE ID
D-1	522979.39	2560722.36	N/A	862.51	N/A	PIPE OUTLET
D-2	522939.09	2560711.11	866.60	863.68	862.93	CATCH BASIN
D-3	522956.46	2560949.49	870.50	866.71	866.71	6" CLEANOUT
D-4	522960.95	2560633.56	875.12	872.23	872.23	6" CLEANOUT
D-5	522858.44	2560604.67	875.32	N/A	873.30	6" CLEANOUT
D-6	523026.32	2560572.53	N/A	861.75	N/A	PIPE OUTLET
D-7	523016.57	2560574.76	867.00	861.85	861.85	6" CLEANOUT
D-8	522996.86	2560579.27	875.05	871.29	871.29	6" CLEANOUT
D-9	522875.26	2560544.99	875.05	N/A	872.55	6" CLEANOUT
D-10	522579.27	2560735.51	N/A	864.80	N/A	PIPE OUTLET
D-11	522586.76	2560669.12	N/A	N/A	866.46	PIPE OUTLET

STORM PIPE TABLE									
NAME	DN STR	UP STR	DN INV EL	UP INV EL	LENGTH (FT)	SLOPE (%)	MATERIAL	DIA (IN)	
DP-1	D-1	D-2	862.51	862.93	41.84	1.00	HDPE	15	
DP-2	D-2	D-3	863.68	866.71	64.02	4.73	HDPE	6	
DP-3	D-3	D-4	866.71	872.23	16.55	33.39	HDPE	6	
DP-4	D-4	D-5	872.23	873.30	106.50	1.00	HDPE	6	
DP-5	D-6	D-7	861.75	861.85	10.00	1.00	HDPE	6	
DP-6	D-7	D-8	861.85	871.29	20.22	46.68	HDPE	6	
DP-7	D-8	D-9	871.29	872.55	126.34	1.00	HDPE	6	
DP-8	D-10	D-11	864.80	866.46	66.81	2.48	CMP	18	

Sheet Keynotes

KEYNOTE No.	DETAIL SHEET No.	DESCRIPTION
1	C-407	ROOF DRAIN WITH CLEANOUT
2	C-408	RIPRAP OUTLET PROTECTION
3	C-408	48" ROUND CATCH BASIN
4	C-408	NEENAH R3246-AL GRATE
5	C-409	SEWER TRENCH
6	C-410	FIRE HYDRANT
7	C-410	WATER LINE TRENCH
8	C-411	GREASE TRAP - 1500 GALLON
9	C-411	CLEANOUT
10	C-411	FLEXIBLE PIPE BEDDING
11	C-411	ROLLED EROSION CONTROL PRODUCTS
12	C-411	ASPHALT TRENCH PATCH
13	C-411	CONCRETE TRENCH PATCH



SANITARY SEWER STRUCTURE TABLE						
NAME	NORTHING	EASTING	RIM EL	INV IN EL	INV OUT EL	STRUCTURE ID
EX CITY MH 57G-3	523267.61	2560581.48	860.48	847.70	846.68	48" MH
S-1	523246.73	2560577.30	861.50	855.77	855.77	6" CLEANOUT
S-2	523120.61	2560552.05	861.27	857.05	857.05	6" CLEANOUT
S-3	522994.49	2560526.81	861.32	858.34	858.34	6" CLEANOUT
S-4	522978.16	2560523.54	868.50	864.95	864.95	6" CLEANOUT
S-5	522890.51	2560505.99	870.36	866.82	866.83	6" CLEANOUT
S-6	522877.28	2560502.26	871.40	867.74	867.74	6" CLEANOUT
S-7	522870.73	2560500.42	872.42	869.42	869.42	6" CLEANOUT
S-8	522874.68	2560486.42	874.08	871.08	871.08	6" CLEANOUT
S-9	522877.75	2560475.53	874.34	871.26	871.26	6" CLEANOUT
S-10	522883.05	2560456.71	874.46	871.45	871.45	6" CLEANOUT
S-11	522875.71	2560454.63	874.50	N/A	872.00	6" CLEANOUT
S-12	522883.49	2560477.27	874.04	871.52	871.52	6" CLEANOUT
S-13	522884.85	2560472.46	874.15	871.57	871.57	GREASE TRAP OUTLET
S-14	522887.83	2560461.87	874.40	871.82	871.82	GREASE TRAP INLET
S-15	522888.56	2560459.30	874.39	871.85	871.85	6" CLEANOUT
S-16	522886.48	2560455.59	874.41	871.89	871.89	6" CLEANOUT
S-17	522876.25	2560452.71	874.50	N/A	872.00	6" CLEANOUT
S-18	522883.55	2560530.68	869.82	867.08	867.08	6" CLEANOUT
S-19	522880.29	2560542.25	874.85	870.93	870.93	6" CLEANOUT
S-20	522878.93	2560547.06	875.10	N/A	870.98	6" CLEANOUT
S-21	522875.93	2560507.08	870.63	867.79	867.79	GREASE TRAP OUTLET
S-22	522872.94	2560517.86	870.53	868.04	868.04	GREASE TRAP INLET
S-23	522871.59	2560522.48	870.43	868.09	868.09	6" CLEANOUT
S-24	522859.13	2560518.97	874.50	N/A	872.00	6" CLEANOUT
S-25	522865.71	2560499.00	874.50	872.00	872.00	6" CLEANOUT
S-26	522851.93	2560480.01	874.50	N/A	872.00	6" CLEANOUT
S-27						

SANITARY SEWER PIPE TABLE									
NAME	DN STR	UP STR	DN INV EL	UP INV EL	LENGTH (FT)	SLOPE (%)	MATERIAL	DIA (IN)	
P-1	EX-MH1	S-1	847.70	855.77	21.29	37.89	PVC	6	
P-2	S-1	S-2	855.77	857.05	128.62	1.00	PVC	6	
P-3	S-2	S-3	857.05	858.34	128.62	1.00	PVC	6	
P-4	S-3	S-4	858.34	864.95	16.65	39.73	PVC	6	
P-5	S-4	S-6	864.95	866.83	89.39	2.10	PVC	6	
P-6	S-6	S-7	866.82	867.74	13.7	6.68	PVC	6	
P-7	S-7	S-8	867.74	869.42	6.8	24.66	PVC	6	
P-8	S-8	S-9	869.42	871.08	14.5	11.37	PVC	6	
P-9	S-9	S-10	871.08	871.26	11.3	1.60	PVC	6	
P-10	S-10	S-11	871.26	871.45	19.6	1.00	PVC	6	
P-11	S-11	S-12	871.45	872.00	7.6	7.21	PVC	6	
P-12	S-10	S-13	871.26	871.52	6.0	4.47	PVC	6	
P-13	S-13	S-14	871.52	871.57	5.0	1.00	PVC	6	
P-14	S-15	S-16	871.82	871.85	2.7	1.00	PVC	6	
P-15	S-16	S-17	871.85	871.89	4.2	1.00	PVC	6	
P-16	S-17	S-18	871.89	872.00	10.6	1.00	PVC	6	
P-17	S-8	S-19	866.82	867.08	25.7	1.00	PVC	6	
P-18	S-19	S-20	867.08	870.93	12.0	32.06	PVC	6	
P-19	S-20	S-21	870.93	870.98	5.0	1.00	PVC	6	
P-20	S-7	S-22	867.74	867.79	5.0	1.00	PVC	6	
P-21	S-23	S-24	868.04	868.09	5.0	1.00	PVC	6	
P-22	S-24	S-25	868.09	872.00	12.9	30.22	PVC	6	
P-23	S-8	S-26	869.42	872.00	5.2	49.43	PVC	6	
P-24	S-9	S-27	871.08	872.00	23.6	3.91	PVC	6	

MARYVILLE RETAIL SITE
1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
PARCEL ID: MAP 57 PARCEL 9.06
CITY OF MARYVILLE
9th CIVIL DISTRICT
BLOUNT COUNTY, TENNESSEE

Project: **LAND TECH CIVIL ENGINEERING & LAND SURVEYING**
100 McCamery Road, Knoxville, TN 37918
865.978.6510 www.landtechco.com

Engineer/Surveyor: **James D. Johnson, P.E.**
REGISTERED PROFESSIONAL ENGINEER
REGISTERED PROFESSIONAL SURVEYOR
STATE OF TENNESSEE
No. 00116621
EXPIRES 7-14-20

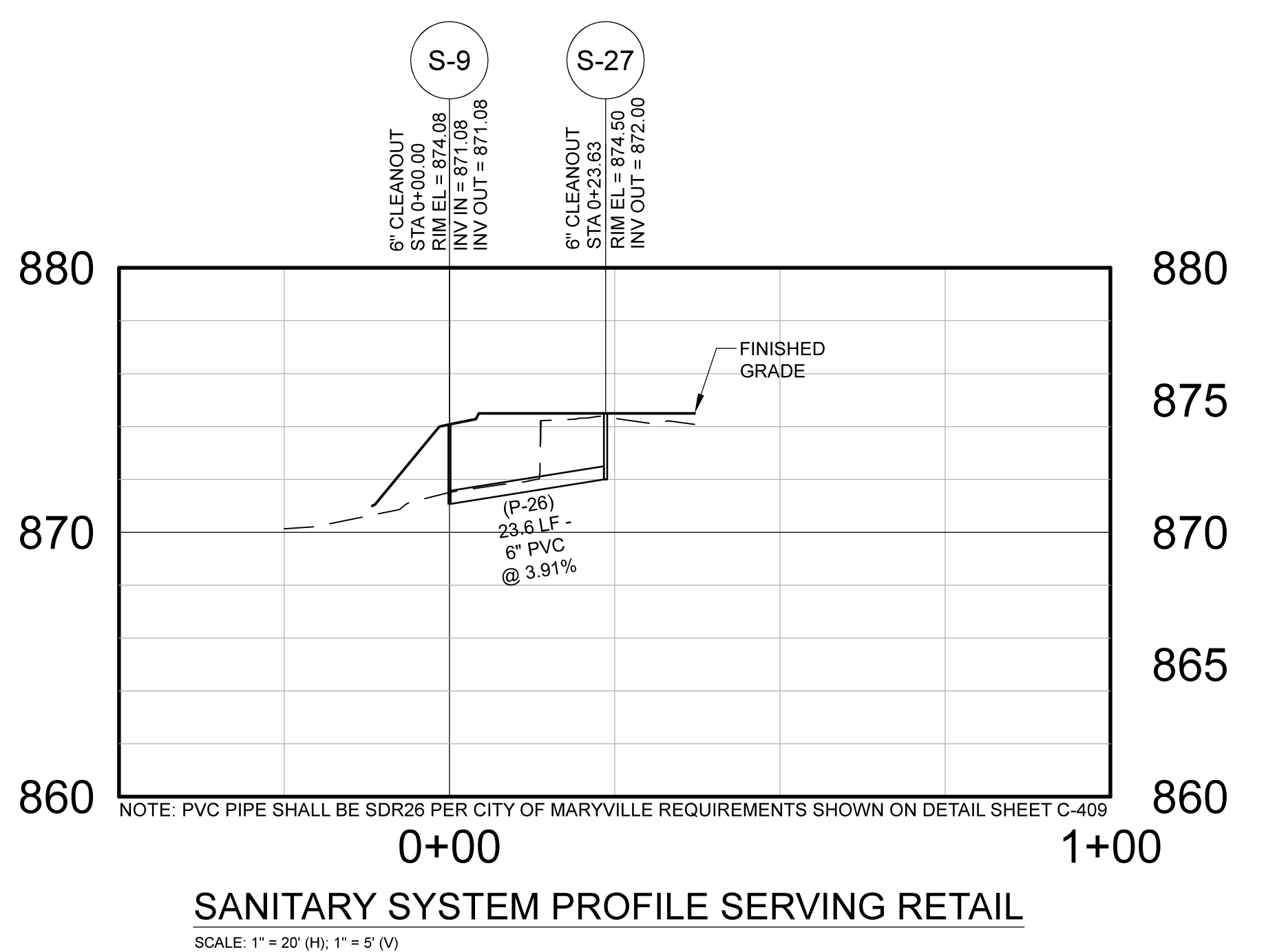
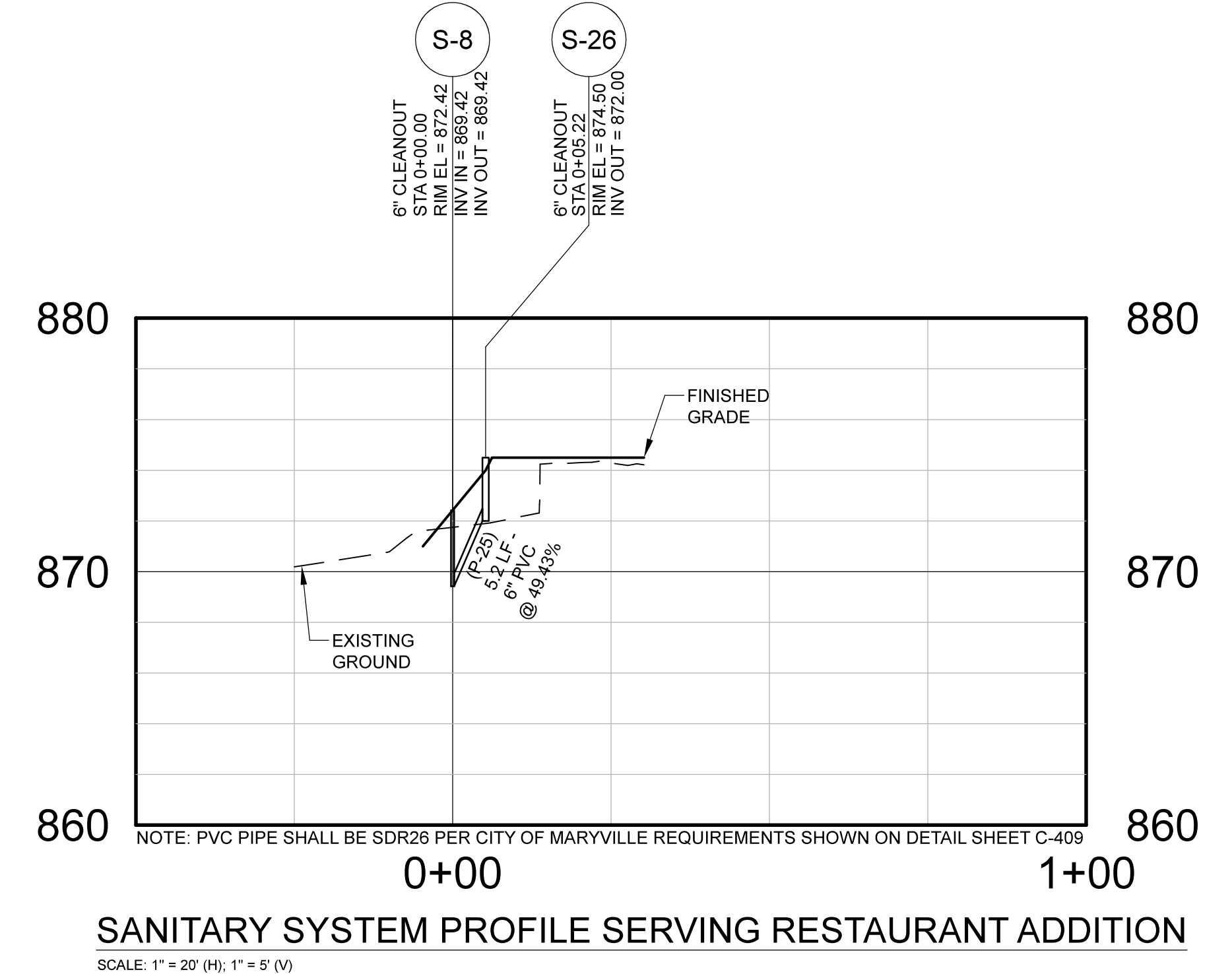
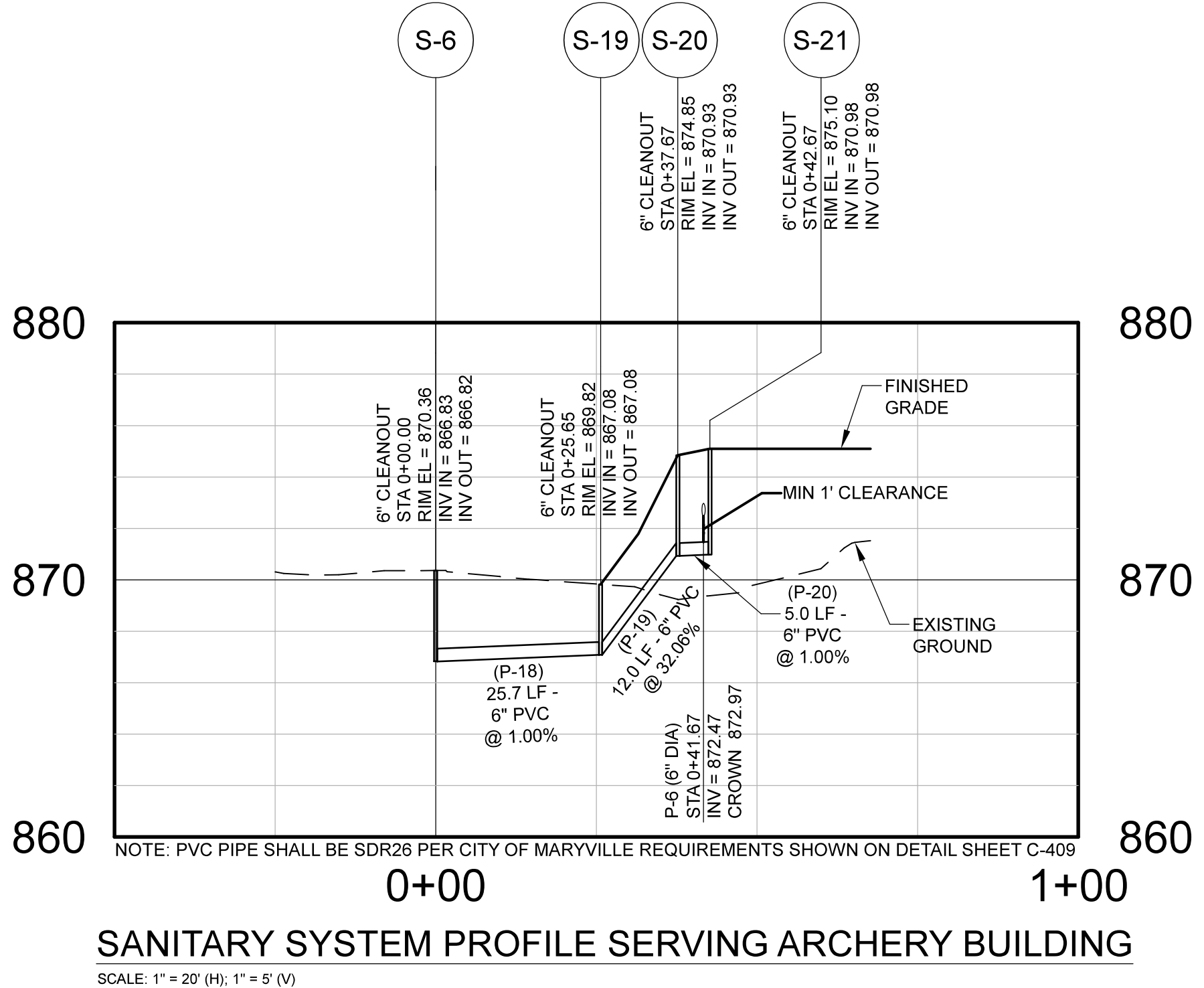
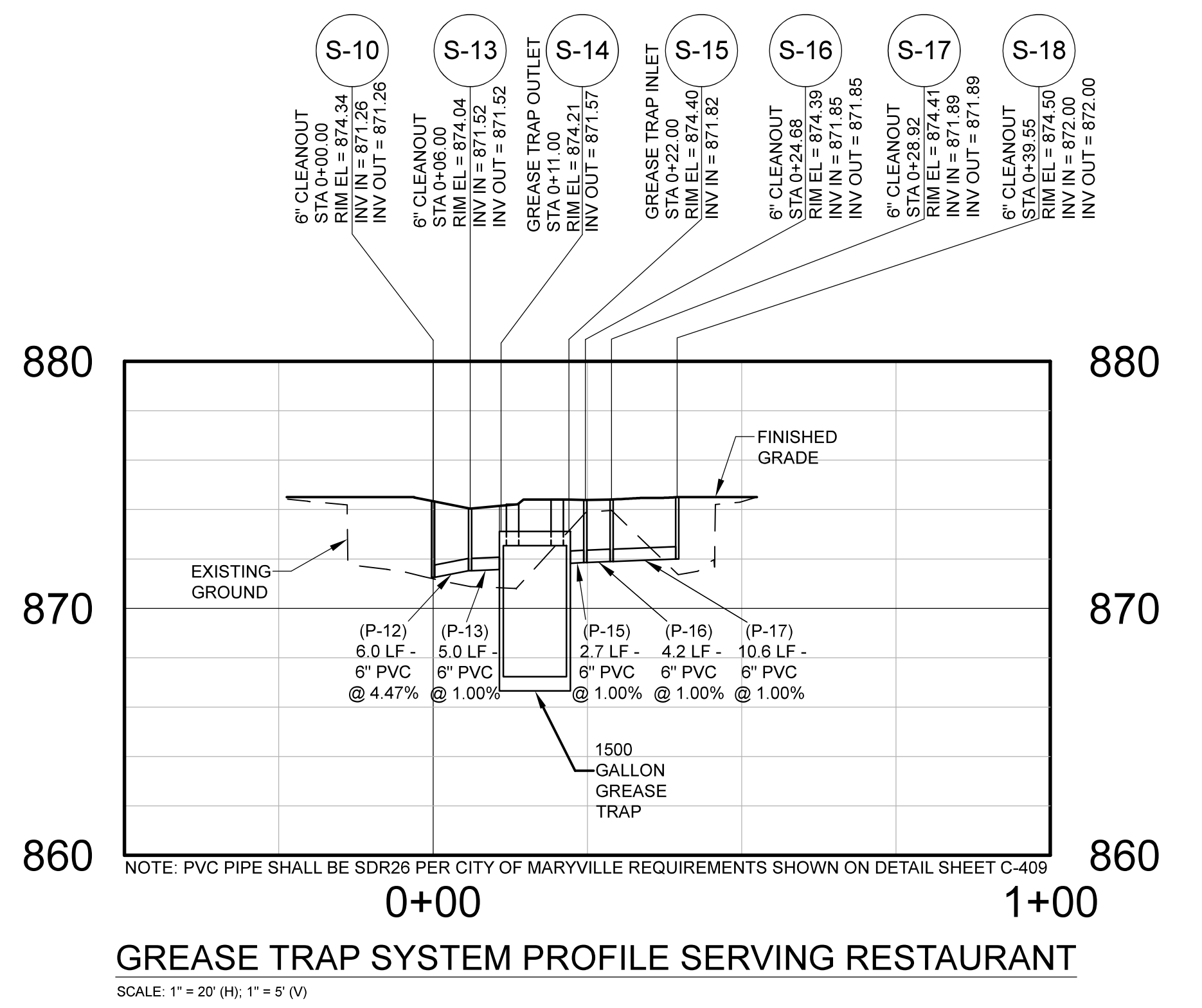
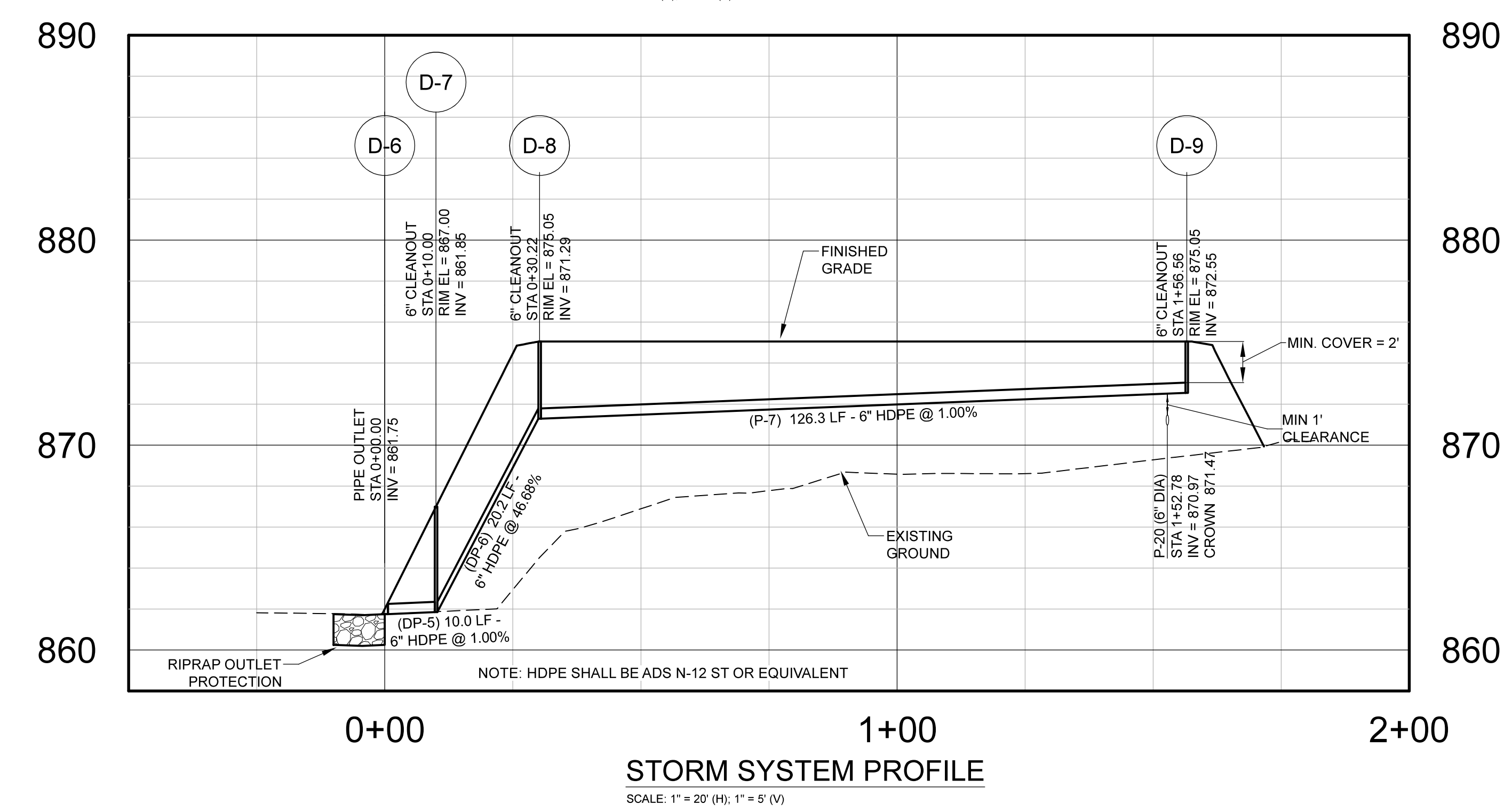
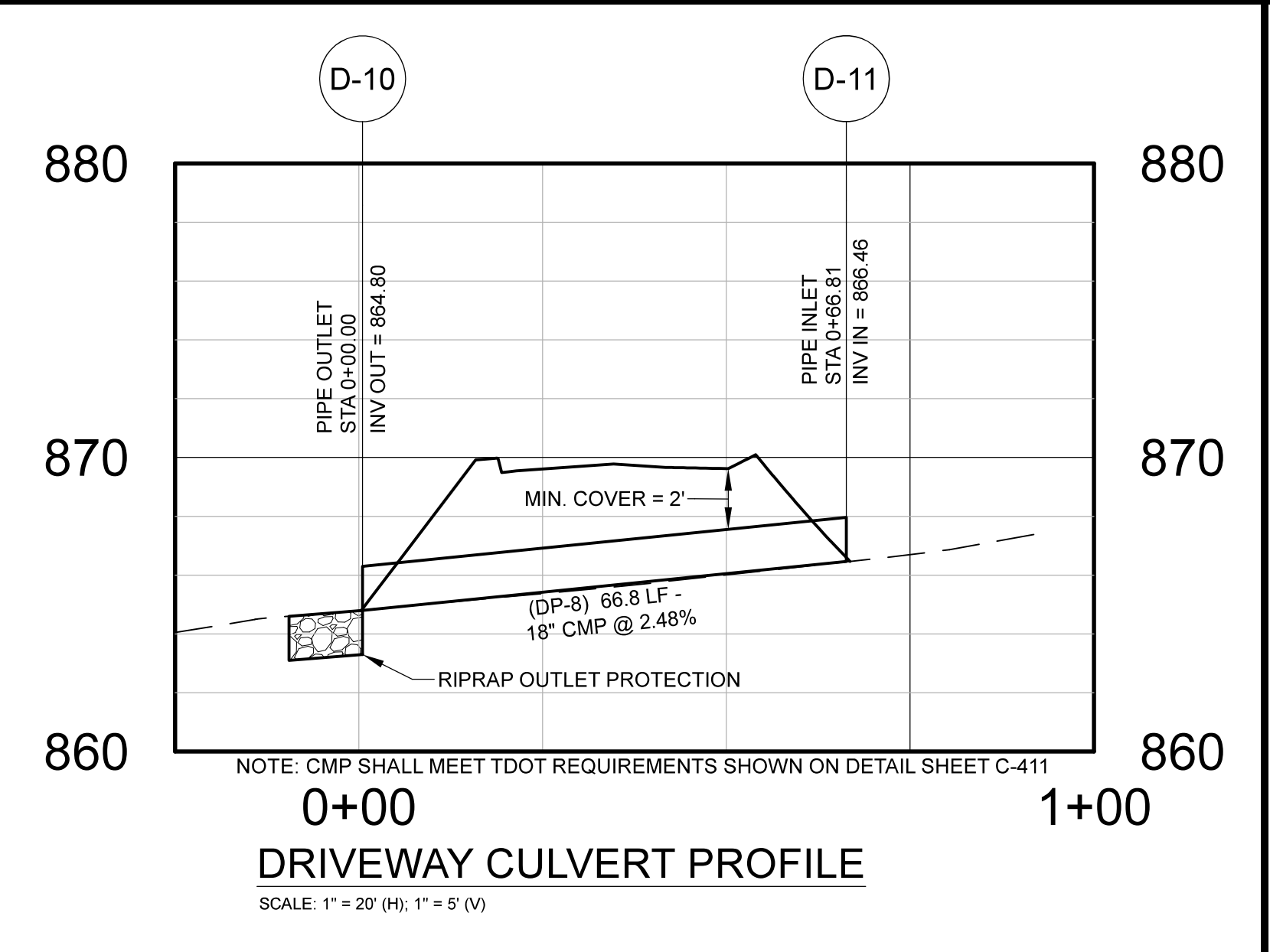
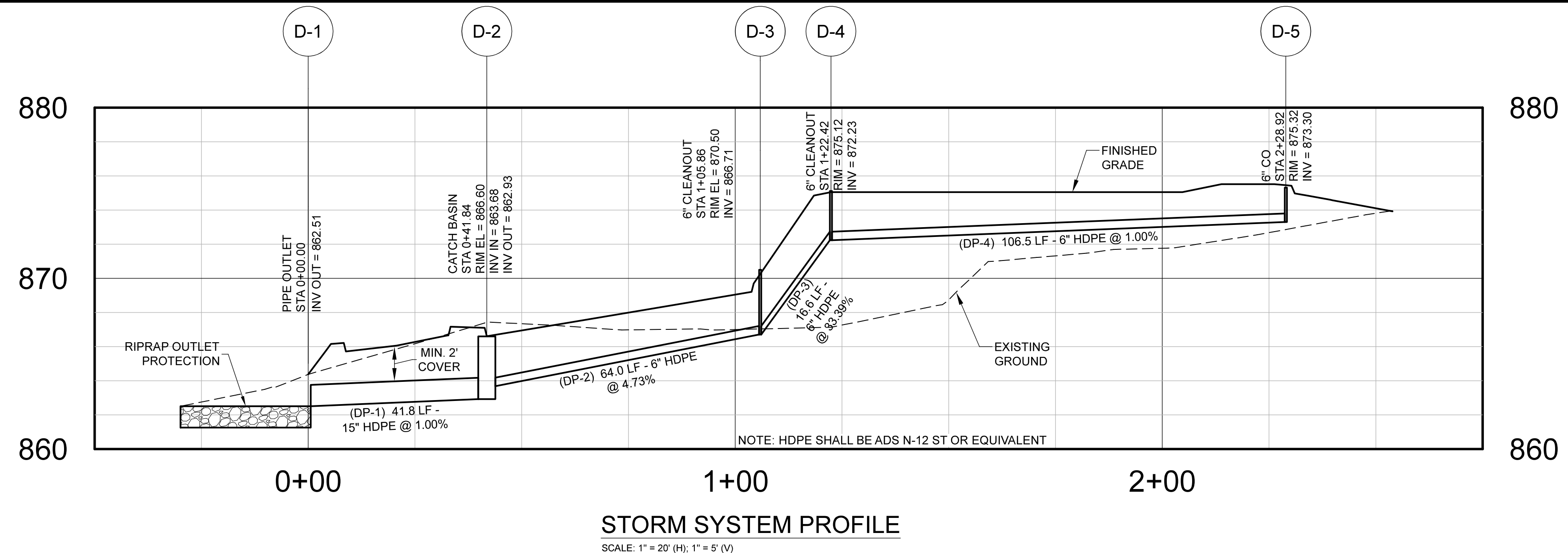
Revision: **REVISION COMMENTS FROM CITY, TDEC AND TDOT**

No.	Date	Revision
1	10/23/20	REVISION COMMENTS FROM CITY, TDEC AND TDOT

Drawn By: **MBB**
Checked By: **JLL**
Approved By: **JLL**
LT Project No.: **2004019**
LT Drawing No.: **D(O)263-R1**
Date: **07/14/20**
Horiz. Scale: **1" = 20'**

Sheet Title: **Grading, Drainage & Utility Plan**

Sheet ID: **C-105A**
Sheet No. 8A



MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
 CITY OF MARYVILLE
 9th CIVIL DISTRICT
 BLOUNT COUNTY, TENNESSEE

Project
 Engineer/Surveyor
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James J. Johnson, Jr.
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF TENNESSEE
 No. 00116621
 7-14-80

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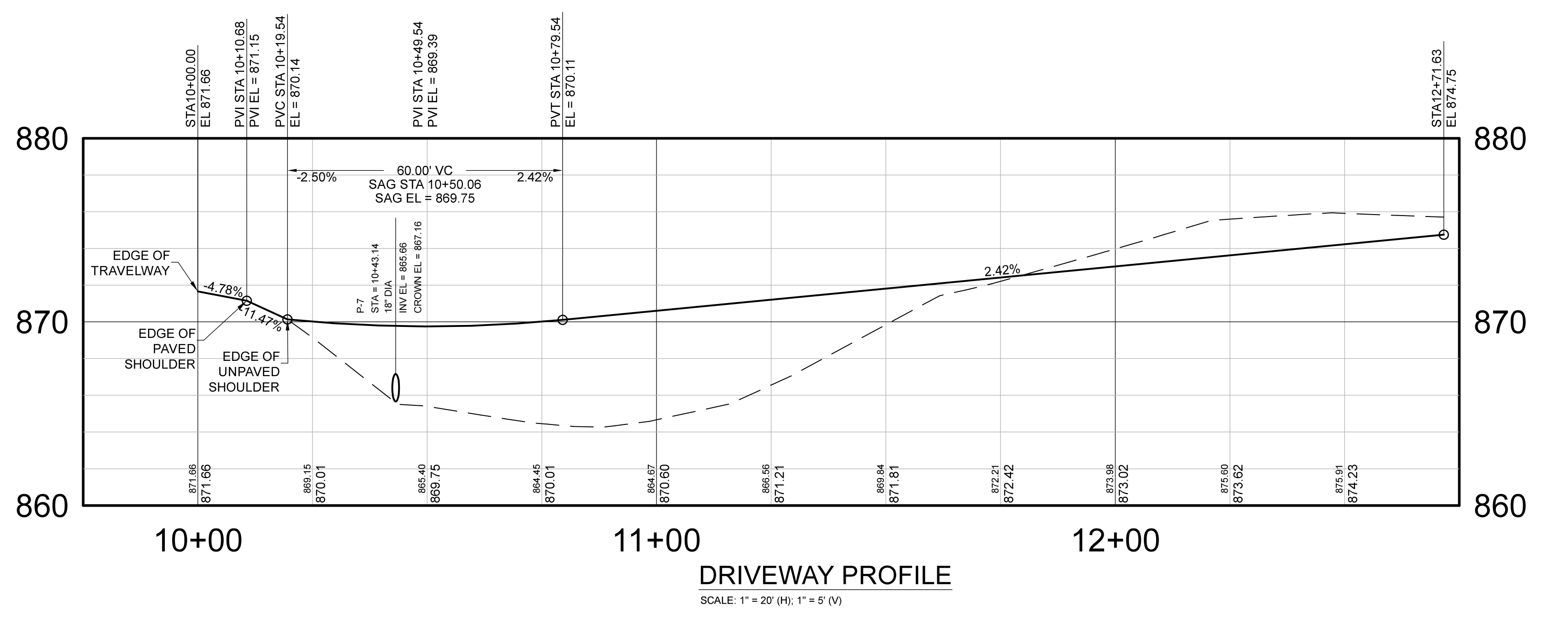
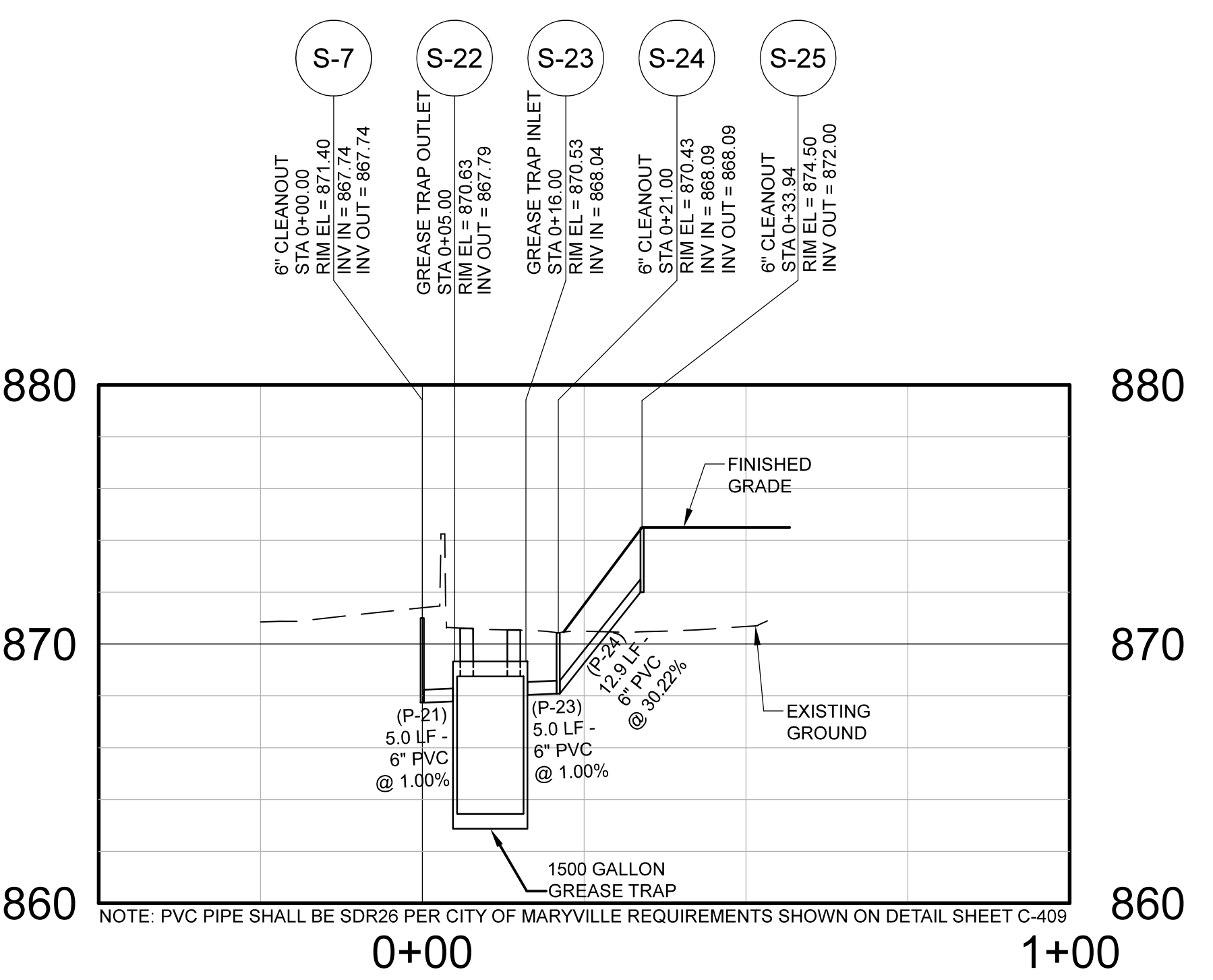
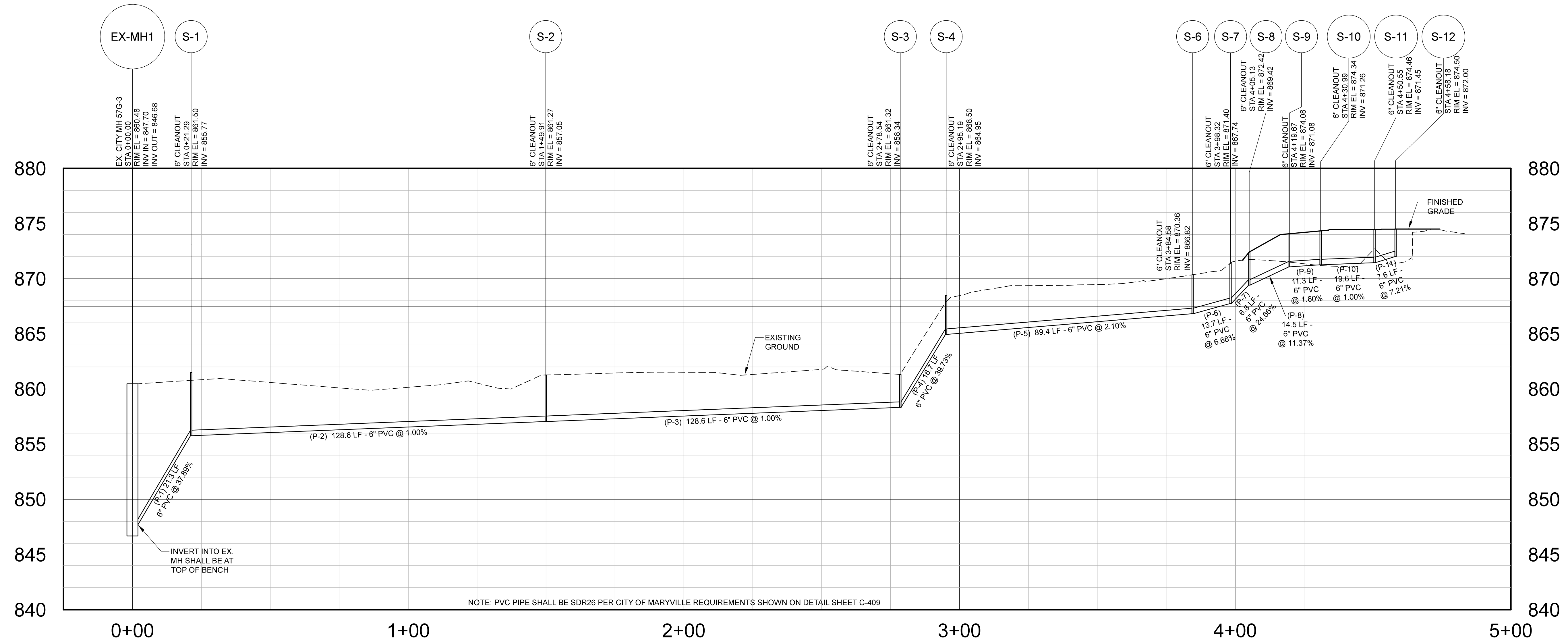
Drawn By:	MBB
Checked By:	JLL
Approved By:	JLL
LT Project No.:	2004019
LT Drawing No.:	D(O)263-R1
Horiz. Scale:	Date: 07/14/20

Sheet Title
Profiles

Sheet ID
C-201

Sheet No. 9





GREASE TRAP SYSTEM PROFILE SERVING RESTAURANT ADDITION
SCALE: 1" = 20' (H); 1" = 5' (V)

SANITARY SEWER SYSTEM PROFILE
SCALE: 1" = 20' (H); 1" = 5' (V)

DRIVEWAY PROFILE
SCALE: 1" = 20' (H); 1" = 5' (V)

MARYVILLE RETAIL SITE
1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
PARCEL ID: MAP 57 PARCEL 9.06
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BLOUNT COUNTY, TENNESSEE

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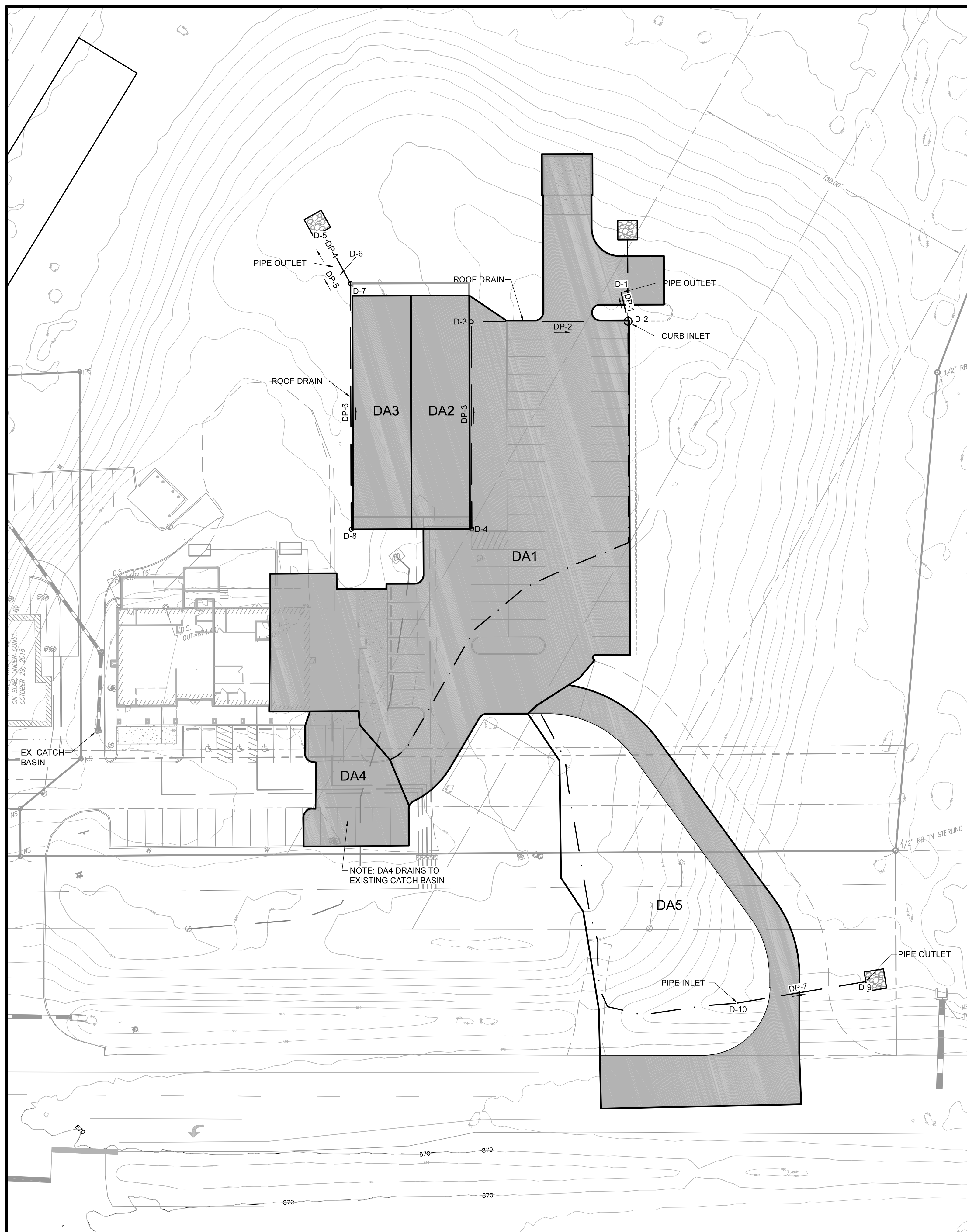
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Sheet Title
Profiles

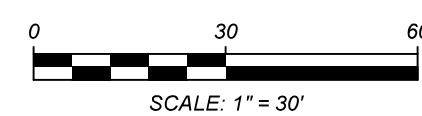
Sheet ID
C-202
Sheet No. 10





DRAINAGE AREA MAP

GENERAL NOTES:
1. CONTOUR SOURCE IS STATE OF TENNESSEE LIDAR COVERAGE.



DRAINAGE AREA SUMMARY TABLE							
AREA ID	IMPERVIOUS (Ac, CN=98)	GRASS (Ac, CN=74)	TOTAL AREA (Ac.)	WEIGHTED CN	Tc (HR)	Q 25-YR (CFS)	Q 50-YR (CFS)
DA1	0.58	0	0.58	98	0.1	4.6	NA
DA2	0.08	0	0.08	98	0.1	0.6	NA
DA3	0.08	0	0.08	98	0.1	0.6	NA
DA4	0.06	0	0.06	98	0.1	0.5	NA
DA5	0.15	0.43	0.58	80	0.1	NA	3.6

NOTES:
1. 25 YEAR PRECIPITATION = 5.8 INCHES IN A 24 HOUR PERIOD.
2. 50 YEAR PRECIPITATION = 8.5 INCHES IN A 24 HOUR PERIOD.
3. PEAK FLOWS CALCULATED PER SCS TR-55.

PIPE DRAINAGE AREA SUMMARY TABLE				
PIPE ID	DRAINAGE AREA ID	TOTAL AREA (Ac.)	Q 25-YR (CFS)	Q 50-YR (CFS)
DP-1	DA1 + DA2	0.66	5.2	NA
DP-2	DA2	0.08	0.6	NA
DP-3	DA2	0.08	0.6	NA
DP-4	DA3	0.08	0.6	NA
DP-5	DA3	0.08	0.6	NA
DP-6	DA3	0.08	0.6	NA
DP-7	DA5	0.58	NA	3.6

PIPE CAPACITY SUMMARY TABLE				
PIPE ID	PIPE SIZE/TYPE	MANNING'S N	PIPE CAPACITY (CFS)	Q 25-YR (CFS)
DP-1	15" HDPE	0.013	6.5	5.2
DP-2	6" HDPE	0.013	1.3	0.6
DP-3	6" HDPE	0.013	0.8	0.6
DP-4	6" HDPE	0.013	0.6	0.6
DP-5	6" HDPE	0.013	3.2	0.6
DP-6	6" HDPE	0.013	0.8	0.6

NOTE: PIPE CAPACITY BASED ON MANNING'S EQUATION.

CULVERT CAPACITY SUMMARY TABLE							
CULVERT ID	PIPE SIZE/TYPE	MANNING'S N	HW/D	OUTLET VELOCITY (FPS)	Q 50-YR (CFS)	ADJ. HWY. ELEVATION	WATER SURFACE ELEVATION
DP-7	18" CMP	0.024	0.73	4.8	3.6	871.01	887.56

INLET DESIGN SUMMARY TABLE					
STRUCTURE ID	Q 25-YR (CFS)	CAPTURED (CFS)	FLOW DEPTH	RIM ELEVATION	WATER SURFACE ELEVATION
D-2	4.6	4.6	0.43	869.83	870.26

OUTLET PROTECTION SUMMARY TABLE										
OUTLET ID	VELOCITY (FT/S)	MIN WIDTH (FT)	MIN LENGTH (FT)	WIDTH PRVDD (FT)	LENGTH PRVDD (FT)	DEPTH (IN)	TDOT CLASSIFICATION	MIN D50 STONE SIZE	D50 STONE SIZE PRVDD (IN)	
D-1	5.8	3.75	8	10	10	18	CLASS A-1	3	9	
D-5	3.2	0	0	10	10	18	CLASS A-1	0	9	
D-9	4.8	0	0	10	10	18	CLASS A-1	0	9	

NOTES:
1. OUTLET D-1 & D-5 MIN LENGTH, MIN D50 STONE SIZE & MIN WIDTH BASED ON TDEC EROSION AND SEDIMENT CONTROL HANDBOOK TABLE 7.23-1 AND FIGURE 7.23-1.
2. OUTLET D-9 MIN LENGTH, MIN D50 STONE SIZE & MIN WIDTH BASED ON TDOT DRAINAGE MANUAL SECTION 5.04.5.1.2 AND FIGURE 6-12.

STORMWATER DESIGN NARRATIVE

THE PURPOSE OF THE PROJECT IS TO CONSTRUCT A NEW BUILDING AND BUILDING ADDITION ON THE MSM DEVELOPMENT MARYVILLE RETAIL SITE LOCATED AT 1421 W LAMAR ALEXANDER PARKWAY IN MARYVILLE, TN.

THE CONSTRUCTION CONSISTS OF AN APPROXIMATE 2,800 SQUARE FOOT BUILDING EXPANSION ON EXISTING BUILDING, CONSTRUCTION OF A 7,200 SQUARE FOOT NEW BUILDING, ASPHALT DRIVEWAY AND PARKING AREA, AND STORMWATER INFRASTRUCTURE.

THE CLOSED CONDUIT STORM DRAINAGE SYSTEM IS DESIGNED FOR A 25-YEAR RAINFALL FREQUENCY DESIGN STORM OF 5.8 INCHES.

A DOWNSTREAM ANALYSIS IS SHOWN ON SHEET C-302 INDICATING NO INCREASE IN THE PEAK FLOW RATE FOR THE PRE-DEVELOPMENT AND POST-DEVELOPMENT DRAINAGE AREAS. THEREFORE, NO STORMWATER MANAGEMENT MEASURES ARE PROVIDED FOR OVERBANK FLOOD PROTECTION AND EXTREME FLOOD PROTECTION.

CHANNEL PROTECTION AND WATER QUALITY TREATMENT CONTROL IS PROVIDED BY SHEET FLOW ACROSS NATURAL FLOOD PLAIN AREA.

LEGEND

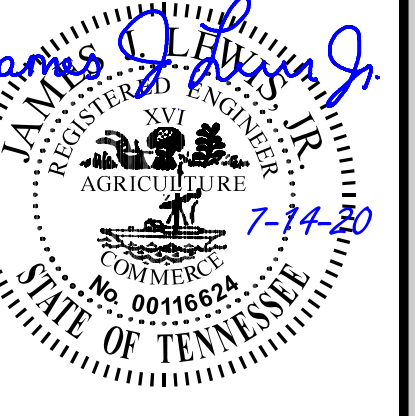
- DA-3 DRAINAGE AREA ID
- Tc FLOW PATH
- MAJOR CONTOUR
- MINOR CONTOUR
- SD STORM DRAIN PIPE
- RD ROOF DRAIN PIPE
- OPEN SPACE AREA (DEFAULT COVER)
- IMPERVIOUS AREA

MARYVILLE RETAIL SITE
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Checked By:	JJL
Approved By:	JJL
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LT Drawing No.:	D(O)263-R1
Horiz. Scale:	1" = 30'
Date:	07/14/20

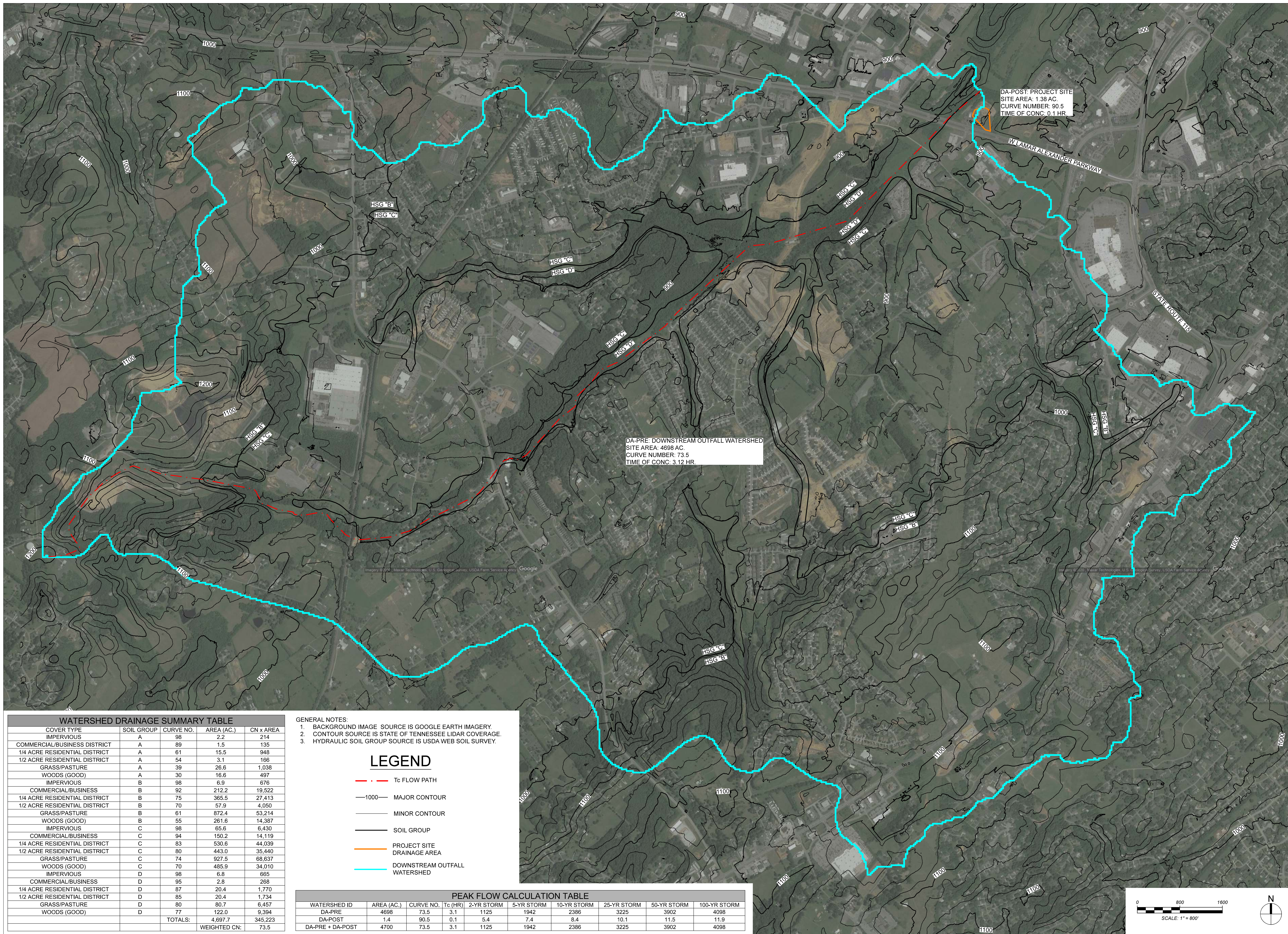
Sheet Title

Drainage Area Map & Calculations

Sheet ID

C-301

Sheet No. 11



DA-POST PROJECT SITE
 SITE AREA: 1.38 AC
 CURVE NUMBER: 90.5
 TIME OF CONC: 0.1 HR

DA-PRE DOWNSTREAM OUTFALL WATERSHED
 SITE AREA: 4698 AC
 CURVE NUMBER: 73.5
 TIME OF CONC: 3.12 HR

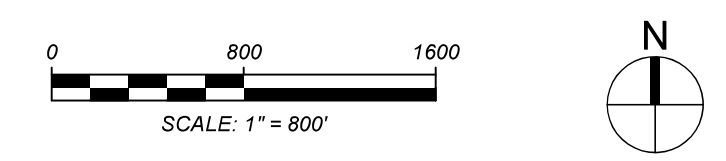
WATERSHED DRAINAGE SUMMARY TABLE				
COVER TYPE	SOIL GROUP	CURVE NO.	AREA (AC.)	CN x AREA
IMPERVIOUS	A	98	2.2	214
COMMERCIAL/BUSINESS DISTRICT	A	89	1.5	135
1/4 ACRE RESIDENTIAL DISTRICT	A	61	15.5	948
1/2 ACRE RESIDENTIAL DISTRICT	A	54	3.1	166
GRASS/PASTURE	A	39	26.6	1,038
WOODS (GOOD)	A	30	16.6	497
IMPERVIOUS	B	98	6.9	676
COMMERCIAL/BUSINESS	B	92	212.2	19,522
1/4 ACRE RESIDENTIAL DISTRICT	B	75	365.5	27,413
1/2 ACRE RESIDENTIAL DISTRICT	B	70	57.9	4,050
GRASS/PASTURE	B	61	872.4	53,214
WOODS (GOOD)	B	55	261.6	14,387
IMPERVIOUS	C	98	65.6	6,430
COMMERCIAL/BUSINESS	C	94	150.2	14,119
1/4 ACRE RESIDENTIAL DISTRICT	C	83	530.6	44,039
1/2 ACRE RESIDENTIAL DISTRICT	C	80	443.0	35,440
GRASS/PASTURE	C	74	927.5	68,637
WOODS (GOOD)	C	70	485.9	34,010
IMPERVIOUS	D	98	6.8	665
COMMERCIAL/BUSINESS	D	95	2.8	268
1/4 ACRE RESIDENTIAL DISTRICT	D	87	20.4	1,770
1/2 ACRE RESIDENTIAL DISTRICT	D	85	20.4	1,734
GRASS/PASTURE	D	80	80.7	6,457
WOODS (GOOD)	D	77	122.0	9,394
TOTALS:			4,697.7	345,223
			WEIGHTED CN:	73.5

- GENERAL NOTES:
 1. BACKGROUND IMAGE SOURCE IS GOOGLE EARTH IMAGERY.
 2. CONTOUR SOURCE IS STATE OF TENNESSEE LIDAR COVERAGE.
 3. HYDRAULIC SOIL GROUP SOURCE IS USDA WEB SOIL SURVEY.

LEGEND

- - - Tc FLOW PATH
- MAJOR CONTOUR
- MINOR CONTOUR
- SOIL GROUP
- PROJECT SITE DRAINAGE AREA
- DOWNSTREAM OUTFALL WATERSHED

PEAK FLOW CALCULATION TABLE									
WATERSHED ID	AREA (AC.)	CURVE NO.	Tc (HR)	2-YR STORM	5-YR STORM	10-YR STORM	25-YR STORM	50-YR STORM	100-YR STORM
DA-PRE	4698	73.5	3.1	1125	1942	2386	3225	3902	4098
DA-POST	1.4	90.5	0.1	5.4	7.4	8.4	10.1	11.5	11.9
DA-PRE + DA-POST	4700	73.5	3.1	1125	1942	2386	3225	3902	4098



MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
 CITY OF MARYVILLE
 9th CIVIL DISTRICT
 BLOUNT COUNTY, TENNESSEE

Project
 Engineer/Surveyor
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No.	Date	Revision
1	10/23/20	REVISION COMMENTS FROM CITY, TDEC AND TDOT

Drawn By: MBB
 Checked By: JLL
 Approved By: JLL
 LT Project No.: 2004019
 LT Drawing No.: D(O)263-R1
 Date: 07/14/20
 Horiz. Scale: 1" = 800'

Sheet Title
Downstream Stormwater Analysis
 Sheet ID
C-302
 Sheet No. 12

SWPPP INDEX OF SHEETS

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2. SITE DESCRIPTION (3.5.1)	C-401
3. ORDER OF CONSTRUCTION ACTIVITIES (3.5.1.b, 3.5.2.a)	C-401
4. STREAM, OUTFALL, WETLAND, TMDL AND ECOLOGY INFORMATION	C-401
5. EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES (3.5.3)	C-402
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7. SITE ASSESSMENTS (3.1.2)	C-402
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9. NON-STORMWATER DISCHARGES (3.5.9)	C-403
10. SPILL PREVENTION, MANAGEMENT AND NOTIFICATION (3.5.5.c, 5.1)	C-403
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15. OUTFALL TABLE (3.5.1.d, 5.4.1.g)	C-404

NOTE: CITATIONS IN PARENTHESIS INDICATE SECTIONS OF THE CURRENT CGP.

1. SWPPP REQUIREMENTS (3.0)

1.1. HAS THE SWPPP TEMPLATE BEEN PREPARED BY AN INDIVIDUAL THAT HAS THE FOLLOWING LICENSING AND/OR CERTIFICATIONS (3.1.1).

YES (CHECK ALL THAT APPLY BELOW), OR NO

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC)

TENNESSEE LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT

HAS SUCCESSFULLY COMPLETED TDEC LEVEL II COURSE

1.2. DO THE EPSC PLANS INVOLVE STRUCTURAL DESIGN, HYDRAULIC, HYDROLOGIC OR OTHER ENGINEERING CALCULATIONS FOR EPSC STRUCTURAL MEASURES (E.G. SEDIMENT BASINS)? (3.1.1)
 YES NO

IF YES, HAVE THE EPSC PLANS BEEN PREPARED, STAMPED AND CERTIFIED BY A TN LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT? YES NO

1.3. DO THE PROJECT STORMWATER OUTFALLS DIRECTLY DISCHARGE INTO THE FOLLOWING? (5.4.1)
 YES (CHECK ALL THAT APPLY BELOW), OR NO

WATERS WITH UNAVAILABLE PARAMETERS (303(d)) FOR SILTATION OR HABITAT ALTERATION

EXCEPTIONAL TENNESSEE WATERS (ETW)

IF "YES" TO SECTION 1.3, HAS THE SWPPP TEMPLATE BEEN PREPARED BY AN INDIVIDUAL THAT HAS THE FOLLOWING LICENSING AND/OR CERTIFICATIONS? (5.4.1.b)
 YES (CHECK ALL THAT APPLY BELOW), OR NO

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC)

TENNESSEE LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT

HAS SUCCESSFULLY COMPLETED TDEC LEVEL II COURSE

2. SITE DESCRIPTION (3.5.1)

2.1. PROJECT LIMITS (3.5.1.h); REFER TO EPSC PLAN SHEET(S): C-102 & C-103.

2.2. PROJECT DESCRIPTION (3.5.1.a):

TITLE: SITE DEVELOPMENT PLANS FOR MARYVILLE RETAIL SITE

LOCATION: 1421 W LAMAR ALEXANDER PKWY, MARYVILLE, TN 37801

2.3. SITE MAP(S) (2.6.2): REFER TO USGS QUAD SITE LOCATION MAP ON SHEET C-404.

2.4. DESCRIPTION OF EXISTING SITE TOPOGRAPHY (3.5.1.d): REFER TO EXISTING CONTOURS ON SHEET(S) 1, USGS QUAD MAP, AND THE OUTFALL TABLE IN SECTION 15.

2.5. MAJOR SOIL DISTURBING ACTIVITIES (3.5.1.b) (CHECK ALL THAT APPLY):

CLEARING AND GRUBBING

EXCAVATION

CUTTING AND FILLING

FINAL GRADING AND SHAPING

UTILITIES

OTHER (DESCRIBE): _____

2.6. TOTAL PROJECT AREA (3.5.1.c): 8.0 ACRES

2.7. TOTAL AREA TO BE DISTURBED (3.5.1.c): 2.1 ACRES

2.8. NO MORE THAN 50 ACRES OF ACTIVE SOIL DISTURBANCE IS ALLOWED AT ANY TIME DURING THE CONSTRUCTION OF THE PROJECT.

2.9. ARE THERE ANY SEASONAL LIMITATIONS ON THE WORK? YES NO

IF "YES", LIST THE CORRESPONDING PLAN SHEET(S): _____

2.10. SOIL PROPERTIES (3.5.1.f)(4.1.1)

SOIL PROPERTIES FOR THE PRIMARY SOILS ARE LISTED IN THE TABLE BELOW.

SOIL PROPERTIES			
PRIMARY SOIL NAME	HSG	% OF SITE	ERODIBILITY (k value)
Lg - LITZ SHALY SILTY CLAY LOAM, ERODED MODERATELY STEEP PHASE	C	48.1	0.24
Sf - SEQUOIA SILTY CLAY LOAM, ERODED GENTLY SLOPING PHASE	C	28.9	0.43
Sg - SEQUOIA SILTY CLAY LOAM, ERODED SLOPING PHASE	C	10.1	0.32
Pc - PRADER SILT LOAM, (MELVIN)	B/D	8.6	0.49
Hc - HAMBLIN SILT LOAM, DRAINAGEWAY	C	4.3	0.37

2.11. PROJECT RUNOFF COEFFICIENTS AND AREA PERCENTAGES (3.5.1.g)

RUNOFF COEFFICIENTS FOR EXISTING CONDITIONS				
AREA TYPE	AREA(AC)	PERCENTAGE OF TOTAL AREA (%)	CURVE NUMBER (CN)	C FACTOR
GRASS	1.6	86.4	74	N/A
IMPERVIOUS	0.3	13.6	98	N/A
WEIGHTED CN OR C-FACTOR =			77	N/A

RUNOFF COEFFICIENTS FOR POST-CONSTRUCTION CONDITIONS				
AREA TYPE	AREA(AC)	PERCENTAGE OF TOTAL AREA (%)	CURVE NUMBER (CN)	C FACTOR
GRASS	0.6	30.9	74	N/A
IMPERVIOUS	1.3	69.1	98	N/A
WEIGHTED CN OR C-FACTOR =			91	N/A

3. ORDER OF CONSTRUCTION ACTIVITIES (3.5.1.b, 3.5.2.a)

CONSTRUCTION SHALL BE SEQUENCED AND STAGED TO: MINIMIZE THE EXPOSURE TIME OF GRADED OR DENUDED SOIL AREAS; PRESERVE TOPSOIL; AND MINIMIZE SOIL COMPACTION. NO WORK SHALL BE STARTED UNTIL THE CONTRACTOR'S PLAN FOR THE STAGING OF THEIR OPERATIONS, INCLUDING THE PLAN FOR STAGING TEMPORARY AND PERMANENT EPSC MEASURES, HAS BEEN ACCEPTED BY THE ENGINEER. THE CONTRACTOR'S EPSC PLAN SHALL INCORPORATE AND SUPPLEMENT, AS ACCEPTABLE, THE ORDER OF CONSTRUCTION ACTIVITIES AND THE BASIC EPSC DEVICES DEPICTED ON THE EPSC PLAN CONTAINED WITHIN THE APPROVED SWPPP.

3.1. SPECIAL SEQUENCING REQUIREMENTS: SEE SHEET(S) C-102 & C-103

3.2. INSTALL STABILIZED CONSTRUCTION EXITS.

3.3. INSTALL PERIMETER PROTECTION WHERE RUNOFF SHEET FLOWS FROM THE SITE.

3.4. INSTALL INITIAL EPSC MEASURES BEFORE CLEARING, GRUBBING, EXCAVATION, GRADING, CULVERT OR BRIDGE CONSTRUCTION, CUTTING, FILLING, OR ANY OTHER EARTHWORK OCCURS, EXCEPT AS SUCH WORK MAY BE NECESSARY TO INSTALL EPSC MEASURES.

3.5. PERFORM CLEARING AND GRUBBING NOT MORE THAN 14 DAYS PRIOR TO GRADING OR EARTH MOVING. REFER TO THE STABILIZATION PRACTICES BELOW.

3.6. REMOVE AND STORE TOPSOIL.

3.7. STABILIZE DISTURBED AREAS WITHIN 14 DAYS OF COMPLETING ANY STAGE AND/OR PHASE OF ACTIVITY.

3.8. INSTALL STORM SEWERS, CULVERTS AND UTILITIES.

3.9. INSTALL PIPE INLET AND OUTLET PROTECTION ONCE STRUCTURES ARE IN PLACE AND CAPABLE OF INTERCEPTING FLOW.

3.10. PERFORM FINAL GRADING AND INSTALL BASE STONE.

3.11. COMPLETE FINAL PAVING AND SEALING OF CONCRETE.

3.12. COMPLETE FINAL STABILIZATION (TOP SOIL, SEEDING, MULCH, EROSION CONTROL BLANKETS, SOD, ETC.)

3.13. REMOVE TEMPORARY EROSION CONTROLS AND ACCUMULATED SEDIMENT FROM AREAS THAT HAVE ESTABLISHED AT LEAST 70 PERCENT UNIFORM PERMANENT VEGETATIVE COVER.

3.14. RE-STABILIZE AREAS DISTURBED BY REMOVAL ACTIVITIES.

4. STREAM, OUTFALL, WETLAND, TMDL, AND ECOLOGY INFORMATION

4.1. STREAM INFORMATION (3.5.1.j, 3.5.1.k)

4.1.1. WILL CONSTRUCTION AND/OR EROSION PREVENTION AND SEDIMENT CONTROLS IMPACT ANY STREAMS WITHIN THE PROJECT LIMITS? YES NO

IF YES, THE IMPACT(S) HAVE BEEN INCLUDED IN THE TOTAL PROJECT IMPACTS AND HAVE BEEN INCLUDED IN SECTION 15 - ENVIRONMENTAL PERMITS.

4.1.2. HAVE ANY OF THE RECEIVING STATE WATERS LESS THAN OR EQUAL TO 1 FLOW MILE DOWN GRADIENT OF THE PROJECT LIMITS BEEN CLASSIFIED BY TDEC AS FOLLOWS (CHECK ALL THAT APPLY):

303(d) WITH UNAVAILABLE PARAMETERS FOR SILTATION

303(d) WITH UNAVAILABLE PARAMETERS FOR HABITAT ALTERATION

EXCEPTIONAL TENNESSEE WATERS (ETW)

4.1.3. RECEIVING WATERS OF THE STATE (3.5.1.k)

RECEIVING STREAM INFORMATION					
STATE WATER LABEL	NAME OF RECEIVING STATE WATER	303(d) WITH UNAVAILABLE PARAMETERS FOR SILTATION OR HABITAT ALTERATION (YES OR NO)	ETW (YES OR NO)	LOCATED WITHIN PROJECT LIMITS (YES OR NO)	LOCATED WITHIN ≤1 FLOW MILE DOWN GRADIENT OF PROJECT LIMITS (YES OR NO)
STR-1	LAUREL BANK CREEK	YES	NO	YES	YES

4.1.4. ARE THERE ANY WATER QUALITY RIPARIAN BUFFER ZONES REQUIRED FOR WATERS OF THE STATE? (4.1.2, 5.4.2) YES NO

IF YES, THEY HAVE BEEN INCLUDED ON PLAN SHEET(S) C-102A & C-103A

IF YES, CHECK THE APPROPRIATE BOX BELOW FOR SIZE OF BUFFER:

60-FEET FOR WATERS WITH UNAVAILABLE PARAMETERS AND ETW (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 30-FEET)

A 60 FOOT NATURAL WATER QUALITY RIPARIAN BUFFER ZONE ADJACENT TO AND ON BOTH SIDES OF THE RECEIVING STATE STREAM WITH THIS DESIGNATION SHALL BE PRESERVED TO THE MAXIMUM EXTENT PRACTICABLE DURING CONSTRUCTION ACTIVITIES AT THE SITE. THE 60 FOOT CRITERION FOR THE WIDTH OF THE BUFFER ZONE CAN BE ESTABLISHED ON AN AVERAGE WIDTH BASIS AT A PROJECT, AS LONG AS THE MINIMUM WIDTH OF THE BUFFER ZONE IS MORE THAN 30 FEET AT ANY MEASURED LOCATION. IF THE CONSTRUCTION SITE ENCOMPASSES BOTH SIDES OF A STREAM, BUFFER AVERAGING CAN BE APPLIED TO BOTH SIDES, BUT MUST BE APPLIED INDEPENDENTLY.

30-FEET FOR ALL OTHER STREAMS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 15-FEET)

A 30 FOOT NATURAL WATER QUALITY RIPARIAN BUFFER ZONE ADJACENT TO AND ON BOTH SIDES OF THE RECEIVING STATE STREAM SHALL BE PRESERVED TO THE MAXIMUM EXTENT PRACTICABLE DURING CONSTRUCTION ACTIVITIES AT THE SITE. THE 30 FOOT CRITERION FOR THE WIDTH OF THE BUFFER ZONE CAN BE ESTABLISHED ON AN AVERAGE WIDTH BASIS AT A PROJECT, AS LONG AS THE MINIMUM WIDTH OF THE BUFFER ZONE IS MORE THAN 15 FEET AT ANY MEASURED LOCATION. IF THE CONSTRUCTION SITE ENCOMPASSES BOTH SIDES OF A STREAM, BUFFER AVERAGING CAN BE APPLIED TO BOTH SIDES, BUT MUST BE APPLIED INDEPENDENTLY.

4.1.5. ARE THERE ANY WATER QUALITY RIPARIAN BUFFER ZONES NOT REQUIRED FOR STATE WATERS DUE TO A TDEC ARAP? (9.0) YES NO

4.1.6. ARE THERE WATER QUALITY RIPARIAN BUFFER ZONE EXEMPTIONS? (4.1.2.1) YES NO

IF YES, EXISTING CONDITIONS DESCRIPTION: _____

4.1.7. EVERY ATTEMPT SHOULD BE MADE FOR CONSTRUCTION ACTIVITIES TO NOT TAKE PLACE WITHIN THE WATER QUALITY RIPARIAN BUFFER ZONE AND FOR EXISTING FORESTED AREAS TO BE PRESERVED. (5.4.2)

4.1.8. BECAUSE OF HEAVY SEDIMENT LOAD ASSOCIATED WITH CONSTRUCTION SITE RUNOFF, WATER QUALITY RIPARIAN BUFFER ZONES ARE NOT SEDIMENT CONTROL MEASURES AND SHOULD NOT BE RELIED UPON AS PRIMARY SEDIMENT CONTROL MEASURES. THE WATER QUALITY RIPARIAN BUFFER ZONE SHALL BE ESTABLISHED BETWEEN THE TOP OF THE STREAM BANK AND THE DISTURBED CONSTRUCTION AREA.

4.1.9. WHERE IT IS NOT PRACTICABLE TO MAINTAIN A FULL WATER QUALITY RIPARIAN BUFFER, BEST MANAGEMENT PRACTICES (BMPs) PROVIDING EQUIVALENT PROTECTION AS THE NATURAL RIPARIAN ZONE MUST BE USED. A JUSTIFICATION FOR USE AND DESIGN EQUIVALENCY SHALL BE DOCUMENTED WITHIN THE SWPPP. TDEC SHALL REVIEW AND APPROVE THIS REVISION OF THE SWPPP BEFORE DISTURBANCE OF THE SITE PROCEEDS, UNLESS PREVIOUSLY EXEMPT IN THE NPDES CGP. WHERE ISSUED, ARAP401 REQUIREMENTS WILL PREVAIL IF IN CONFLICT WITH THESE BUFFER ZONE REQUIREMENTS.

4.2. RECEIVING WATERS OF THE UNITED STATES (WOTUS) (EPHEMERAL)

WILL CONSTRUCTION AND/OR EROSION AND SEDIMENT CONTROLS IMPACT ANY WOTUS (EPHEMERAL)? YES NO

WOTUS LABEL	LOCATED WITHIN PROJECT LIMITS (YES OR NO)	LOCATED WITHIN 15-FT OF THE PROJECT LIMITS (YES OR NO)
N/A	N/A	N/A

4.2.1. ARE WATER QUALITY RIPARIAN BUFFER ZONES REQUIRED FOR WOTUS (EPHEMERAL)? (4.1.2) YES NO

IF "YES", A 15 FOOT NATURAL WATER QUALITY RIPARIAN BUFFER ZONE ADJACENT TO AND ON BOTH SIDES OF THE RECEIVING EPHEMERAL STREAM IDENTIFIED AS A WOTUS (EPHEMERAL) BY THE U.S. ARMY CORPS OF ENGINEERS (USACE) OF THE ENVIRONMENTAL PROTECTION AGENCY (EPA) SHALL BE PRESERVED TO THE MAXIMUM EXTENT PRACTICABLE DURING CONSTRUCTION ACTIVITIES AT THE SITE.

IF "YES", THEY HAVE BEEN INCLUDED ON PLAN SHEET(S): _____

4.2.2. ARE THERE ANY WATER QUALITY RIPARIAN BUFFER ZONES NOT REQUIRED FOR WOTUS (EPHEMERAL) DUE TO A USACE PERMIT? YES NO

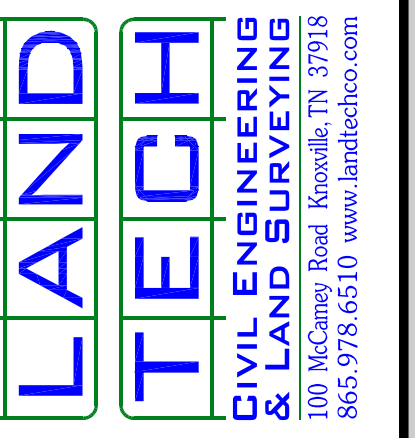
4.3. OUTFALL INFORMATION

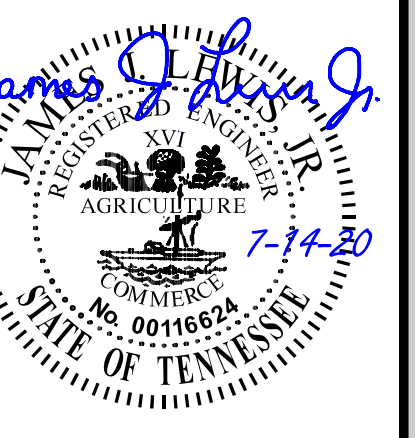
4.3.1. OUTFALL TABLE (3.5.1.e) SEE SWPPP SHEET C-404 FOR OUTFALL INFORMATION.

4.3.2. HAVE ALL OUTFALLS BEEN LABELED ON THE EPSC PLAN SHEETS? (3.5.1.h) YES NO

4.3.3. HAVE ALL OUTFALLS BEEN LABELED ON A USGS QUAD MAP? (2.6.2) YES NO

Project
MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
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Revision	Date	Revision Comments FROM CITY, TDEC AND TDOT
No. 1	10/23/20	

Drawn By:	MBB
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Sheet Title
Stormwater Pollution Prevention Plan
 Sheet ID
C-401
 Sheet No. 13

- 4.3.4. WHERE POSSIBLE, HAS NON-PROJECT RUN-OFF BEEN DIVERTED AROUND OR THROUGH THE PROJECT TO ELIMINATE CONTACT WITH DISTURBED AREAS OF THE PROJECT AND SEPARATE IT FROM PROJECT RUN-OFF, THEREBY REDUCING THE DRAINAGE AREA TO THE OUTFALLS IN THIS AREA? YES NO N/A
- 4.3.5. ARE EQUIVALENT MEASURES BEING SUBSTITUTED FOR A SEDIMENT BASIN(S)? YES NO N/A
- 4.3.6. A SEDIMENT BASIN OR EQUIVALENT MEASURE(S) WILL BE PROVIDED FOR ANY OUTFALL IN A DRAINAGE AREA:
- OF 10 ACRES OR MORE FOR AN OUTFALL(S) THAT DOES NOT DISCHARGE TO A STATE STREAM WITH UNAVAILABLE PARAMETERS OR ETW. A TEMPORARY (OR PERMANENT) SEDIMENT BASIN, OR EQUIVALENT CONTROL MEASURE(S) THAT PROVIDES STORAGE FOR A CALCULATED VOLUME OF RUN-OFF FROM A MINIMUM 2-YEAR / 24-HOUR STORM EVENT, SHALL BE PROVIDED UNTIL FINAL STABILIZATION OF THE SITE. (3.5.3.3);

OR

OF 5 ACRES OR MORE FOR AN OUTFALL(S) THAT DISCHARGES TO A STATE STREAM WITH UNAVAILABLE PARAMETERS OR ETW. A TEMPORARY (OR PERMANENT) SEDIMENT BASIN THAT PROVIDES STORAGE FOR A CALCULATED VOLUME OF RUN-OFF FROM A MINIMUM 5-YEAR / 24-HOUR STORM EVENT AND RUN-OFF FROM EACH ACRE DRAINED, OR EQUIVALENT CONTROL MEASURE(S), SHALL BE PROVIDED UNTIL FINAL STABILIZATION OF THE SITE. (3.4.1.g);

4.4. WETLAND INFORMATION

WILL CONSTRUCTION AND/OR EROSION AND SEDIMENT CONTROLS IMPACT ANY WETLANDS? YES NO

IF "YES" THE STRUCTURAL EPSC MEASURES HAVE BEEN INCLUDED IN THE TOTAL PROJECT IMPACTS, AND IN THE WATER QUALITY PERMITS.

WETLAND INFORMATION		
WETLAND LABEL	TEMPORARY IMPACT AREA(AC)	PERMANENT IMPACT AREA (AC)
N/A	N/A	N/A

4.5. TOTAL MAXIMUM DAILY LOADS (TMDL) INFORMATION (3.5.10)

4.5.1. IS THIS PROJECT LOCATED IN A HUC-8 WATERSHED THAT MAINTAINS AN EPA APPROVED TMDL FOR SILTATION AND HABITAT ALTERATION? YES NO

4.5.2. IF "YES" IS THIS PROJECT LOCATED WITHIN A HUC-12 SUBWATERSHED WITH A WASTE LOAD ALLOCATION (WLA)? YES NO

4.5.3. IF "YES" DOES THE PROJECT HAVE A DIRECT DISCHARGE TO A 303(d) LISTED STREAM FOR SILTATION OR HABITAT ALTERATION? YES NO

4.5.4. IF "YES" HAS A SUMMARY OF THE CONSULTATION LETTER BEEN SUBMITTED/RECEIVED? YES NO

5. EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES (3.5.3)

- 5.1. EPSC MEASURES MUST BE DESIGNED, INSTALLED AND MAINTAINED TO CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE EROSION. (4.1.1)
- 5.2. EPSC MEASURES MUST CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOWS AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS, STREAM CHANNELS AND STREAM BANKS. (4.1.1)
- 5.3. HAVE THE CONTROL MEASURES BEEN DESIGNED ACCORDING TO THE SIZE AND SLOPE OF THE DISTURBED DRAINAGE AREA (3.5.3.3)? YES NO
- 5.4. THE CONTROL MEASURES HAVE, AT A MINIMUM, BEEN DESIGNED FOR THE 2-YEAR, 24 HOUR STORM EVENT (3.5.3.3, 5.4.1.a).
- 5.5. ARE THE LIMITS OF DISTURBANCE CLEARLY MARKED ON THE EPSC PLANS? (3.5.1.h) YES NO
- 5.6. AREAS TO BE UNDISTURBED SHALL BE CLEARLY MARKED IN THE FIELD BEFORE CONSTRUCTION ACTIVITIES BEGIN.
- 5.7. HAVE STAGED EPSC PLANS BEEN PREPARED FOR THE PROJECT? (3.5.2)
- YES NO (IF "YES", CHECK ONE BELOW):
- 5.7.1. PROJECT DISTURBED AREA IS THAN LESS THAN 5 ACRES (MIN. 2-STAGE EPSC PLANS)
- 5.7.2. PROJECT DISTURBED AREA IS GREATER THAN 5 ACRES (MIN. 3-STAGE EPSC PLANS)
- 5.8. STEEP SLOPES ARE DEFINED AS NATURAL OR CREATED SLOPE OF 35% GRADE OR GREATER, REGARDLESS OF HEIGHT. HAVE STEEP SLOPES BEEN MINIMALLY DISTURBED AND/OR PROTECTED BY CONVEYING RUN-OFF NON-EROSIVELY AROUND OR OVER THE SLOPE (3.5.3.2)? YES NO N/A
- 5.9. STEEP SLOPES SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED. (3.5.3.2)
- 5.10. TEMPORARY EPSC MEASURES MAY BE REMOVED AT THE BEGINNING OF THE WORKDAY, BUT MUST BE RE-INSTALLED AT THE END OF THE WORKDAY OR BEFORE A PRECIPITATION EVENT.
- 5.11. EPSC MEASURES LOCATED IN A WOTUS (EPHEMERAL) STREAMS MUST BE CONSIDERED TEMPORARY AND SHALL BE REMOVED AT THE END OF CONSTRUCTION.
- 5.12. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN A PROACTIVE METHOD TO PREVENT THE OFF-SITE MIGRATION OR DEPOSIT OF SEDIMENT OFF THE PROJECT LIMITS (E.G., ROW, EASEMENTS, ETC) INTO WATERS OF THE STATE/U.S., OR ONTO ROADWAYS USED BY THE PUBLIC. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT THAT HAVE NOT REACHED A STREAM MUST BE REMOVED TO A LEVEL SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS (E.G., FUGITIVE SEDIMENT THAT HAS ESCAPED THE CONSTRUCTION SITE AND HAS COLLECTED IN A STREET MUST BE REMOVED SO THAT IT IS NOT SUBSEQUENTLY WASHED INTO STORM SEWERS AND STREAMS BY THE NEXT RAIN AND/OR SO THAT IT DOES NOT POSE A SAFETY HAZARD TO USERS OF THE PUBLIC STREETS). ARRANGEMENTS CONCERNING REMOVAL OF SEDIMENT ON ADJOINING PROPERTY MUST BE SETTLED

WITH THE ADJOINING PROPERTY OWNER BEFORE REMOVAL OF SEDIMENT. SEDIMENT THAT MIGRATES INTO WATERS OF THE STATE/U.S. SHALL NOT BE REMOVED WITHOUT GUIDANCE FROM TDEC LOCAL ENVIRONMENTAL FIELD OFFICE (EFO).

- 5.13. OFF-SITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST SHALL BE MINIMIZED. A STABILIZED CONSTRUCTION EXIT (A POINT OF ENTRANCE/EXIT TO THE CONSTRUCTION PROJECT) SHALL BE PROVIDED TO REDUCE THE TRACKING OF MUD AND DIRT ONTO PUBLIC ROADS BY CONSTRUCTION VEHICLES.
- 5.14. DISCHARGES FROM DEWATERING ACTIVITIES ARE PROHIBITED UNLESS MANAGED BY APPROPRIATE CONTROLS THAT PROVIDE THE LEVEL OF TREATMENT (FILTRATION) NECESSARY TO COMPLY WITH PERMIT REQUIREMENTS. (4.1.4)
- 5.15. SETTLING BASINS AND SEDIMENT TRAPS SHALL BE PROPERLY DESIGNED PER THE SIZE OF THE DRAINAGE AREAS OR VOLUME OF WATER TO BE TREATED. TREATED WATER MUST BE DISCHARGED THROUGH A PIPE OR WELL-VEGETATED OR LINED CHANNEL SO THAT THE DISCHARGE DOES NOT CAUSE EROSION OR SEDIMENT TRANSPORT.
- 5.16. DISCHARGES FROM SEDIMENT BASINS AND IMPOUNDMENTS SHALL UTILIZE OUTLET STRUCTURES THAT ONLY WITHDRAW WATER FROM NEAR THE SURFACE OF THE BASIN OR IMPOUNDMENT. TREATED WATER MUST BE DISCHARGED THROUGH A PIPE OR WELL VEGETATED AND/OR LINED CHANNEL SO THAT THE DISCHARGE DOES NOT CAUSE EROSION OF SEDIMENT TRANSPORT.
- 5.17. WATER DISCHARGED FROM DEWATERING ACTIVITIES SHALL NOT CAUSE AN OBJECTIONABLE COLOR CONTRAST WITHIN THE RECEIVING NATURAL RESOURCE. WATER MUST BE HELD WITHIN SETTLING BASINS UNTIL IT IS AT LEAST AS CLEAR AS THE RECEIVING WATERS.
- 5.18. STABILIZATION PRACTICES: PRE-CONSTRUCTION VEGETATIVE COVER WILL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN 14 DAYS PRIOR TO GRADING OR EARTH MOVING UNLESS THE AREA WILL BE SEEDED AND/OR MULCHED OR OTHER TEMPORARY COVER IS INSTALLED. (3.5.3.1.h)
- 5.19. STABILIZATION MEASURES WILL BE INITIATED AS SOON AS POSSIBLE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY OR PERMANENT STABILIZATION WILL BE COMPLETED WITHIN 14 DAYS AFTER ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IN THAT AREA. PERMANENT STABILIZATION WILL REPLACE TEMPORARY MEASURES AS SOON AS PRACTICABLE. (3.5.3.2).
- 5.20. A SOIL ANALYSIS SHALL BE PERFORMED PRIOR TO THE APPLICATION OF FERTILIZERS TO ANY PORTION OF THE SITE. SOILS SHOULD BE ANALYZED FOR pH, BUFFER VALUE, PHOSPHOROUS, POTASSIUM, CALCIUM AND MAGNESIUM. SOIL SAMPLES SHOULD BE REPRESENTATIVE OF THE AREA FOR WHICH FERTILIZER WILL BE APPLIED. SAMPLE TYPE SHOULD BE COLLECTED AND ANALYZED IN ACCORDANCE WITH THE UT EXTENSION "SOIL TESTING" BROCHURE PB1061. (4.1.5)
- 5.21. FERTILIZERS SHALL BE APPLIED ONLY IN THE AMOUNTS SPECIFIED FROM THE ANALYSES. ONCE APPLIED, FERTILIZERS SHALL BE WORKED INTO THE SOIL TO LIMIT THE EXPOSURE TO STORMWATER.

6. MAINTENANCE AND INSPECTION

- 6.1. INSPECTION PRACTICES (3.5.8)
- 6.1.1. EPSC INSPECTORS RESPONSIBLE FOR THE INSPECTION, IMPLEMENTATION, MAINTENANCE, AND/OR REPAIR OF EPSC MEASURES SHALL MEET ONE OF THE FOLLOWING REQUIREMENTS (3.5.8.1):
- 6.1.1.1. SUCCESSFULLY COMPLETED THE TDEC "LEVEL I - FUNDAMENTALS OF EROSION AND SEDIMENT CONTROL" COURSE AND ANY RECERTIFICATION COURSES AS REQUIRED.
- 6.1.1.2. BE A CURRENT TN LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT.
- 6.1.1.3. BE A CURRENT CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC).
- 6.1.1.4. SUCCESSFULLY COMPLETED THE TDEC "LEVEL II - DESIGN PRINCIPLES FOR EROSION PREVENTION AND SEDIMENT CONTROL FOR CONSTRUCTION SITES" COURSE AND ANY RECERTIFICATION COURSES AS REQUIRED.
- 6.1.2. EPSC CONTROLS SHALL BE INSPECTED TO VERIFY MEASURES HAVE BEEN INSTALLED AND MAINTAINED IN ACCORDANCE WITH STANDARD DRAWINGS, SPECIFICATIONS, AND GOOD ENGINEERING PRACTICES. EPSC INSPECTIONS SHALL BE DOCUMENTED ON THE TDEC EPSC INSPECTION REPORT FORM AND THE TDEC CONSTRUCTION STORMWATER INSPECTION CERTIFICATION (TWICE-WEEKLY INSPECTIONS) FORM.
- 6.1.3. OUTFALL POINTS SHALL BE INSPECTED TO ASCERTAIN WHETHER EPSC MEASURES ARE EFFECTIVE IN PREVENTING EROSION AND CONTROLLING SEDIMENT, INCLUDING SIGNIFICANT IMPACTS TO SURROUNDING STATE WATERS, WOTUS (EPHEMERAL), WETLANDS, OTHER NATURAL RESOURCES AND ADJACENT PROPERTY OWNERS. WHERE DISCHARGE LOCATIONS ARE INACCESSIBLE, NEARBY DOWN GRADIENT LOCATIONS SHALL BE INSPECTED. LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF-SITE ROADWAY SEDIMENT TRACKING.
- 6.1.4. INSPECTIONS WILL BE CONDUCTED AT LEAST TWICE EVERY CALENDAR WEEK AND AT LEAST 72 HOURS APART. (3.5.8.2.a). A CALENDAR WEEK IS DEFINED AS SUNDAY THROUGH SATURDAY.
- 6.1.5. THE FREQUENCY OF EPSC INSPECTIONS MAY BE REDUCED TO ONCE A MONTH WHERE SITES OR PORTIONS OF SITES HAVE BEEN TEMPORARILY STABILIZED UNTIL CONSTRUCTION ACTIVITIES RESUME WITH WRITTEN NOTIFICATION TO THE TDEC LOCAL EFO. WRITTEN NOTIFICATION MUST INCLUDE THE INTENT TO CHANGE FREQUENCY AND JUSTIFICATION. (3.5.8.2.a)
- 6.1.6. ALL DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED, AREAS USED FOR MATERIAL STORAGE THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE, AND EACH OUTFALL WILL BE INSPECTED. (3.5.8.2.b)
- 6.1.7. THE INSPECTOR WILL OVERSEE THE REQUIREMENTS OF OTHER CONSTRUCTION-RELATED WATER QUALITY PERMITS (I.E. TDEC ARAP, USACE 404, AND TVA SECTION 26a PERMITS) FOR CONSTRUCTION ACTIVITIES AROUND WATERS OF THE STATE. (10 - DEFINITIONS; "INSPECTOR)
- 6.1.8. THE SWPPP WILL BE REVISED AS NECESSARY BASED ON THE RESULTS OF THE INSPECTION. REVISION(S) WILL BE RECORDED WITHIN 7 DAYS OF THE INSPECTION. REVISION(S) WILL BE IMPLEMENTED WITHIN 14 DAYS OF THE INSPECTION. (3.5.8.2.e AND 3.5.8.2.f)
- 6.1.9. DOCUMENTATION OF INSPECTIONS WILL BE MAINTAINED ON SITE IN THE "DOCUMENTATION AND PERMITS" BINDER.

6.1.10. TRAINED CERTIFIED INSPECTORS SHALL COMPLETE INSPECTION DOCUMENTATION TO THE BEST OF THEIR ABILITY. FALSIFYING INSPECTION RECORDS OR OTHER DOCUMENTATION OR FAILURE TO COMPLETE INSPECTION DOCUMENTATION SHALL RESULT IN A VIOLATION OF THIS PERMIT AND ANY OTHER APPLICABLE ACTS OR RULES. (3.8.5.2.h).

6.2. MAINTENANCE PRACTICES (3.5.3.1 AND 3.5.7)

- 6.2.1. ALL CONTROLS WILL BE MAINTAINED IN GOOD AND EFFECTIVE OPERATING ORDER AND IN ACCORDANCE WITH STANDARD DRAWINGS AND GOOD ENGINEERING PRACTICES. (3.5.3.1.b)
- 6.2.2. MAINTENANCE AND REPAIR ACTIVITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 6.2.3. UPON CONCLUSION OF THE INSPECTIONS, EPSC MEASURES FOUND TO BE INEFFECTIVE SHALL BE REPAIRED, REPLACED, OR MODIFIED BEFORE THE NEXT RAIN EVENT, IF POSSIBLE, BUT IN NO CASE MORE THAN 7 DAYS AFTER THE INSPECTION OR WHEN THE CONDITION IS IDENTIFIED. IF THE REPAIR, REPLACEMENT OR MODIFICATION IS NOT PRACTICAL WITHIN THE 7 DAY TIMEFRAME, WRITTEN DOCUMENTATION PROVIDED BY THE CONTRACTOR SHALL BE PLACED IN THE EPSC INSPECTION REPORT. (3.5.8.2.e)
- 6.2.4. SEDIMENT SHALL BE REMOVED FROM SEDIMENT CONTROL STRUCTURES (SEDIMENT TRAPS, SILT FENCE, SEDIMENT BASINS, OTHER CONTROLS, ETC.) WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT. (3.5.3.1.e)
- 6.2.5. DURING SEDIMENT REMOVAL, THE CONTRACTOR SHALL TAKE STEPS TO ENSURE THAT STRUCTURAL COMPONENTS OF EPSC MEASURES ARE NOT DAMAGED, AND THUS MADE INEFFECTIVE. IF DAMAGE DOES OCCUR, THE CONTRACTOR SHALL REPAIR THE EPSC MEASURE AT THE CONTRACTOR'S OWN EXPENSE.
- 6.2.6. CHECK DAMS WILL BE INSPECTED FOR STABILITY. SEDIMENT WILL BE REMOVED WHEN THE DEPTH REACHES ONE-HALF THE HEIGHT OF THE DAM.
- 6.2.7. SEDIMENT REMOVED FROM SEDIMENT CONTROL STRUCTURES SHALL BE PLACED AND TREATED IN A MANNER SO THAT THE SEDIMENT IS CONTAINED WITHIN THE PROJECT LIMITS, DOES NOT MIGRATE INTO FEATURES REMOVED FROM, AND DOES NOT MIGRATE ONTO ADJACENT PROPERTIES AND/OR WATERS FO THE STATE/U.S.
- 6.2.8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER WILL BE PICKED UP AND REMOVED FROM STORMWATER EXPOSURE PRIOR TO ANTICIPATED STORM EVENTS OR BEFORE BEING CARRIED OFF OF THE SITE BY WIND, OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES. AFTER USE, MATERIALS USED FOR EROSION CONTROL WILL BE REMOVED. (3.5.3.1.f)

7. SITE ASSESSMENTS (3.1.2)

ARE SITE ASSESSMENT REQUIRED? YES NO

8. STORMWATER MANAGEMENT (3.5.4)

- 8.1. STORMWATER MANAGEMENT WILL BE HANDLED BY TEMPORARY CONTROLS OUTLINED IN THIS SWPPP AND ANY PERMANENT CONTROLS NEEDED TO MEET PERMANENT STORMWATER MANAGEMENT NEEDS IN THE POST CONSTRUCTION PERIOD. PERMANENT CONTROLS WILL BE SHOWN ON THE PLANS AND NOTED AS PERMANENT.
- 8.2. DESCRIBE ANY SPECIFIC POST-CONSTRUCTION MEASURES THAT WILL CONTROL VELOCITY, POLLUTANTS, AND/OR EROSION (3.5.4): _____
- 8.3. OTHER ITEMS NEEDING CONTROL (3.5.5)

CONSTRUCTION MATERIALS: THE FOLLOWING MATERIALS OR SUBSTANCES ARE EXPECTED TO BE PRESENT ON THE SITE DURING THE CONSTRUCTION PERIOD. (CHECK ALL THAT APPLY)

- LUMBER, GUARDRAIL, TRAFFIC CONTROL DEVICES
- CONCRETE WASHOUT
- PIPE CULVERTS (I.E., CONCRETE, CORRUGATED METAL, HDPE, ETC.)
- MINERAL AGGREGATES, ASPHALT
- EARTH
- LIQUID TRAFFIC STRIPING MATERIALS, PAINT
- ROCK
- CURING COMPOUND
- EXPLOSIVES
- OTHER: _____

THESE MATERIALS WILL BE HANDLED AS NOTED IN THIS SWPPP.

8.4. WASTE MATERIALS (3.5.5.b)

WASTE MATERIAL (EARTH, ROCK, ASPHALT, CONCRETE, ETC.) NOT REQUIRED FOR THE CONSTRUCTION OF THE PROJECT WILL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS. IMPACTS TO WATERS OF THE STATE/U.S. SHALL BE AVOIDED IF POSSIBLE. IF UNAVOIDABLE, THE CONTRACTOR WILL OBTAIN ALL NECESSARY PERMITS INCLUDING, BUT NOT LIMITED TO NPDES, ARAP, USACE 404 PERMITS, AND TVA SECTION 26a PERMITS TO DISPOSE OF WASTE MATERIALS.

8.5. HAZARDOUS WASTE (3.5.5.c) (7.9)

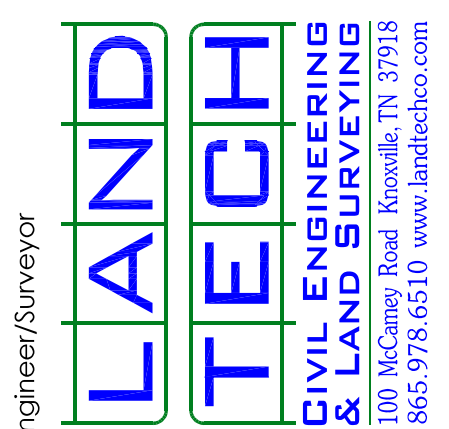
ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN A MANNER WHICH IS COMPLIANT WITH LOCAL OR STATE REGULATIONS. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES, AND THE INDIVIDUAL DESIGNATED AS THE CONTRACTOR'S ON-SITE REPRESENTATIVE WILL BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED. THE CONTRACTOR WILL OBTAIN ALL NECESSARY PERMITS TO DISPOSE OF HAZARDOUS MATERIAL.

8.6. SANITARY WASTE (3.5.5.b)

PORTABLE SANITARY FACILITIES WILL BE PROVIDED ON ALL CONSTRUCTION SITES. SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS IN A TIMELY MANNER BY A LICENSED WASTE

MARYVILLE RETAIL SITE
1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
PARCEL ID: MAP 57 PARCEL 9.06
CITY OF MARYVILLE
9th CIVIL DISTRICT
BLOUNT COUNTY, TENNESSEE

Project



Engineer/Surveyor



No.	Date	Revision
1	10/23/20	REVISION COMMENTS FROM CITY, TDEC AND TDOT

Drawn By:	MBB
Checked By:	JLL
Approved By:	JLL
LT Project No.:	2004019
LT Drawing No.:	D(O)263-R1
Horiz. Scale:	Date: 07/14/20

Sheet Title

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Pollution
Prevention
Plan

Sheet ID

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MANAGEMENT CONTRACTOR OR AS REQUIRED BY ANY LOCAL REGULATIONS. THE CONTRACTOR WILL OBTAIN ALL NECESSARY PERMITS TO DISPOSE OF SANITARY WASTE.

8.7. OTHER MATERIALS

THE FOLLOWING MATERIALS OR SUBSTANCES ARE EXPECTED TO BE PRESENT ON THE SITE DURING THE CONSTRUCTION PERIOD. (CHECK ALL THAT APPLY).

- Fertilizers and Lime, Pesticides and/or Herbicides, Diesel and Gasoline, Machinery Lubricants (Oil and Grease)

THESE MATERIALS WILL BE HANDLED AS NOTED IN THIS SWPPP.

9. NON-STORMWATER DISCHARGES (3.5.9)

9.1. THE FOLLOWING NON-STORMWATER DISCHARGES ARE ANTICIPATED DURING THE CONSTRUCTION OF THIS PROJECT (CHECK ALL THAT APPLY):

- Dewatering of work areas of collected stormwater and ground water, Waters used to wash vehicles, Potable water sources including waterline flushings, Uncontaminated groundwater or spring water, Foundation or footing drains, etc.

9.2. ALL ALLOWABLE NON-STORMWATER DISCHARGES WILL BE DIRECTED TO STABLE DISCHARGE STRUCTURES PRIOR TO LEAVING THE SITE. FILTERING OR CHEMICAL TREATMENT MAY BE NECESSARY PRIOR TO DISCHARGE.

9.3. THE DESIGN OF ALL IMPACTED EPSC MEASURES RECEIVING FLOW FROM ALLOWABLE NON-STORMWATER DISCHARGES MUST BE DESIGNED TO HANDLE THE VOLUME OF THE NON-STORMWATER COMPONENT.

9.4. WASH DOWN OR WASTE DISCHARGE OF CONCRETE TRUCKS WILL NOT BE PERMITTED ON-SITE UNLESS PROPER SETTLEMENT AREAS HAVE BEEN PROVIDED IN ACCORDANCE WITH BOTH STATE AND FEDERAL REGULATIONS.

9.5. ARE ANY DISCHARGES ASSOCIATED WITH INDUSTRIAL (NON-CONSTRUCTION STORMWATER) ACTIVITY EXPECTED (3.5.1.i)? YES NO

IF "YES" SPECIFY THE LOCATION OF THE ACTIVITY AND ITS PERMIT NUMBER: _____

10. SPILL PREVENTION, MANAGEMENT AND NOTIFICATION (3.5.5.c, 5.1)

10.1. SPILL PREVENTION (3.5.5.c)

- 10.1.1. Contractor's bulk fuel and petroleum products stored on-site in above-ground storage tanks with aggregate storage capacity in excess of 1,320 gallons shall have secondary containment.
10.1.2. The contractor shall be responsible for preparing a spill prevention control and countermeasure (SPCC) plan as required by law.
10.1.3. The contractor shall be solely responsible for obtaining any necessary local, state, and federal permits.

10.2. MATERIAL MANAGEMENT

10.2.1. HOUSEKEEPING

ONLY PRODUCTS NEEDED WILL BE STORED ON-SITE BY THE CONTRACTOR. EXCEPT FOR BULK MATERIALS THE CONTRACTOR WILL STORE ALL MATERIALS UNDER COVER AND IN APPROPRIATE CONTAINERS. PRODUCTS MUST BE STORED IN ORIGINAL CONTAINERS AND LABELED.

10.2.2. HAZARDOUS MATERIALS

PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THE CONTAINER IS NOT RESEALABLE. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHEETS WILL BE RETAINED IN A SAFE PLACE TO RELAY IMPORTANT PRODUCT INFORMATION. IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S LABEL DIRECTIONS FOR DISPOSAL WILL BE FOLLOWED.

BE COLLECTED ON SITE AND MANAGED TO PREVENT CONTAMINATION OF STORMWATER RUNOFF.

10.3. PRODUCT SPECIFIC PRACTICES

- 10.3.1. PETROLEUM PRODUCTS: ALL ON-SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE.
10.3.2. FERTILIZERS: FERTILIZERS WILL BE APPLIED ONLY IN THE AMOUNTS SPECIFIED BY THE MANUFACTURER.
10.3.3. PAINTS: ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE.
10.3.4. CONCRETE TRUCKS: CONTRACTORS WILL PROVIDE DESIGNATED TRUCK WASHOUT AREAS ON THE SITE.

10.4. SPILL MANAGEMENT

IN ADDITION TO THE PREVIOUS HOUSEKEEPING AND MANAGEMENT PRACTICES, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP IF NECESSARY.

- 10.4.1. FOR ALL HAZARDOUS MATERIALS STORED ON SITE, THE MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEAN UP WILL BE CLEARLY POSTED.
10.4.2. APPROPRIATE CLEANUP MATERIALS AND EQUIPMENT SHALL BE MAINTAINED BY THE CONTRACTOR IN THE MATERIALS STORAGE AREA ON-SITE AND UNDER COVER.
10.4.3. ALL SPILLS WILL BE CLEANED IMMEDIATELY AFTER DISCOVERY AND THE MATERIALS DISPOSED OF PROPERLY.
10.4.4. THE CONTRACTOR'S RESPONSIBLE PARTY WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
10.4.5. IF SPILLS REPRESENT AN IMMINENT THREAT OF ESCAPING THE SITE AND ENTERING RECEIVING WATERS, PERSONNEL WILL RESPOND IMMEDIATELY TO CONTAIN THE RELEASE AND NOTIFY THE SUPERINTENDENT AFTER THE SITUATION HAS BEEN STABILIZED.
10.4.6. IF AN OIL SHEEN IS OBSERVED ON SURFACE WATER (E.G. SETTLING PONDS, DETENTION PONDS, SWALES), ACTION WILL BE TAKEN IMMEDIATELY TO REMOVE THE MATERIAL CAUSING THE SHEEN.
10.4.7. IF A SPILL OCCURS THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING THE SPILL REPORTING FORM AND FOR REPORTING THE SPILL TO THE PRIMARY PERMITTEE.

10.5. SPILL NOTIFICATION (5.1)

WHERE A RELEASE CONTAINING A HAZARDOUS SUBSTANCE IN AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTABLE QUANTITY ESTABLISHED UNDER EITHER 40 CFR 117 OR 40 CFR 302 OCCURS DURING A 24 HOUR PERIOD:

- 10.5.1. THE PRIMARY PERMITTEE WILL NOTIFY THE LOCAL TDEC EFO AND ANY OTHER APPLICABLE REGULATORY AGENCIES WITHIN 24 HOURS OF THE SPILL.
10.5.2. IN ADDITION TO ANY FOLLOW UP NOTIFICATIONS REQUIRED BY FEDERAL LAW, A WRITTEN DESCRIPTION OF THE RELEASE, DATE OF RELEASE AND CIRCUMSTANCES LEADING TO THE RELEASE, WHAT ACTIONS WERE TAKEN TO MITIGATE THE EFFECTS OF THE RELEASE, AND STEPS TAKEN TO MINIMIZE THE CHANCE OF FUTURE OCCURANCES WILL BE SUBMITTED TO THE APPROPRIATE TDEC EFO WITHIN 14 DAYS OF KNOWLEDGE OF THE RELEASE.
10.5.3. THE SWPPP MUST BE MODIFIED WITHIN 14 DAYS OF KNOWLEDGE OF THE RELEASE PROVIDING A DESCRIPTION OF THE RELEASE, CIRCUMSTANCES LEADING TO THE RELEASE, AND THE DATE OF RELEASE.

11. RECORD-KEEPING

11.1. REQUIRED RECORDS

THE PERMITTEE WILL MAINTAIN AT THE SITE THE FOLLOWING RECORDS OF CONSTRUCTION ACTIVITIES (3.5.3.1.m) (4.1.5) (6.2.1):

- 11.1.1. THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR
11.1.2. THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE
11.1.3. THE DATES WHEN STABILIZATION MEASURES ARE INITIATED

11.1.4. RECORDS OF EPSC INSPECTION REPORTS AND CORRECTIVE MEASURES

11.1.5. RECORDS OF SITE ASSESSMENTS

11.1.6. COPY OF SITE EPSC INSPECTOR'S CERTIFICATION AND/OR LICENSING

11.1.7. COPY OF REQUIRED SOIL ANALYSIS

11.1.8. A COPY OF ANY REGULATORY CORRESPONDENCE REGARDING THE EFFECTIVENESS OF THE SWPPP OR EPSC CONTROLS.

11.2. RAINFALL MONITORING PLAN (3.5.3.1.o)

11.2.1. EQUIPMENT

AT A MINIMUM, THE CONTRACTOR WILL INSTALL A FENCE POST TYPE RAIN GAUGE TO MEASURE RAINFALL. THE STANDARD FENCE POST RAIN GAUGE WILL BE A WEDGE-SHAPED GAUGE THAT MEASURES UP TO 6 INCHES OF RAINFALL.

11.2.2. LOCATION

THE RAIN GAUGE WILL BE LOCATED AT OR ALONG THE PROJECT SITE, AS DEFINED IN THE NOI FOR THE NPDES PERMIT. IF AN OPEN AREA SUCH THAT THE MEASUREMENT WILL NOT BE INFLUENCED BY OUTSIDE FACTORS (I.E., OVERHANGS, GUTTER, TREES, ETC.)

11.2.3. METHODS

RAINFALL MONITORING WILL BE INITIATED PRIOR TO CLEARING, GRUBBING, EXCAVATION, GRADING, CUTTING, OR FILLING, EXCEPT AS SUCH MINIMAL CLEARING MAY BE NECESSARY TO INSTALL A RAIN GAUGE IN AN OPEN AREA.

EACH RAIN GAUGE WILL BE READ (FOR DETAILED RECORDS OF RAINFALL) AND EMPTIED AFTER EVERY RAINFALL EVENT OCCURRING ON THE PROJECT SITE AT APPROXIMATELY THE SAME TIME OF THE DAY (DURING NORMAL BUSINESS HOURS).

11.2.4. DETAILED RECORDS WILL BE RECORDED OF RAINFALL EVENTS INCLUDING DATES, AMOUNTS OF RAINFALL, AND THE APPROXIMATE DURATION (OR THE STARTING AND ENDING TIMES).

11.2.5. IF THE RAINFALL EVENT IS STILL IN PROGRESS AT THE DAILY RECORDING TIME, THE GAUGE WILL BE EMPTIED AND THE RECORD WILL INDICATE THAT THE STORM EVENT WAS STILL IN PROGRESS.

11.3. KEEPING PLANS CURRENT (3.4)

11.3.1. THE EPSC PLAN IS TO SERVE AS AN INITIAL GUIDE FOR SITE PERSONNEL. AS THE CONSTRUCTION PROCESS DEVELOPS IT MUST BE AMENDED, MODIFIED, AND UPDATED WHENEVER EPSC INSPECTION INDICATE, OR WHERE STATE OR FEDERAL REGULATORY OFFICIALS DETERMINE EPSC MEASURES ARE PROVING INEFFECTIVE.

11.3.2. THE STAGES DEPICTED WITHIN THE EPSC PLANS MAY NOT COINCIDE WITH THE ACTUAL STAGES OF CONSTRUCTION ESTABLISHED BY THE CONTRACTOR DURING CONSTRUCTION. THUS, MODIFICATIONS WILL BE REQUIRED TO ENSURE THE EPSC PLAN IS MAINTAINED TO DEPICT CURRENT SITE CONDITIONS.

11.3.3. THE PRIMARY PERMITTEE OF THEIR REPRESENTATIVE WILL MODIFY AND UPDATE THE SWPPP WHEN ANY OF THE FOLLOWING CONDITIONS APPLY:

11.3.3.1. WHENEVER THERE IS A CHANGE IN THE SCOPE OF THE PROJECT THAT WOULD BE EXPECTED TO HAVE A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO THE WATERS OF THE STATE/U.S. AND WHICH HAS NOT OTHERWISE BEEN ADDRESSED IN THE SWPPP.

11.3.3.2. WHENEVER INSPECTIONS OR INVESTIGATIONS BY SITE OPERATORS, LOCAL, STATE, OR FEDERAL OFFICIALS INDICATE THE SWPPP IS PROVING INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS FROM CONSTRUCTION ACTIVITY SOURCES.

11.3.3.3. WHEN ANY NEW OPERATOR AND/OR SUB-OPERATOR IS ASSIGNED OR RELIEVED OF THEIR RESPONSIBILITY TO IMPLEMENT A PORTION OF THE SWPPP.

11.3.3.4. TO PREVENT A NEGATIVE IMPACT TO LEGALLY PROTECTED STATE OR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED AQUATIC FAUNA.

11.3.3.5. WHEN THERE IS A CHANGE IN CHEMICAL TREATMENT METHODS INCLUDING: USE OF DIFFERENT TREATMENT CHEMICALS, DIFFERENT DOSAGE OR APPLICATION RATES OR A DIFFERENT AREA OF APPLICATION NOT SPECIFIED ON THE EPSC PLANS.

MARYVILLE RETAIL SITE
1421 W LAMAR ALEXANDER HWY., MARYVILLE TN
PARCEL ID: MAP 57 PARCEL 9.06
CITY OF MARYVILLE
9th CIVIL DISTRICT
BLOUNT COUNTY, TENNESSEE

Project
Engineer/Surveyor

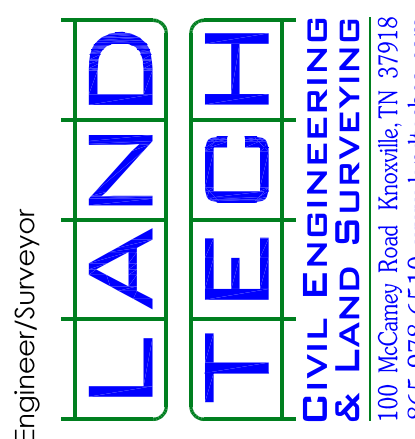


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Table with 2 columns: Drawn By, Checked By, Approved By, LT Project No., LT Drawing No., Horiz. Scale, Date. Values: MBB, JLL, JLL, 2004019, D(O)263-R1, 07/14/20

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11.3.3.6. ALL SWPPP REVISION(S) SHALL BE RECORDED WITHIN 7 DAYS BY THE EPSC INSPECTOR.

11.3.3.7. WHEN A TMDL IS DEVELOPED FOR THE RECEIVING WATERS FOR A POLLUTANT OF CONCERN (SILTATION AND/OR HABITAT ALTERATION), THE CONTRACTOR SHALL NOTIFY THE TDEC EFO FOR PROPER COORDINATION.

11.4. MAKING PLANS ACCESSIBLE

11.4.1. A COPY OF THIS SWPPP (INCLUDING A COPY OF THE "DOCUMENTATION AND PERMITS" BINDER) SHOULD BE KEPT AT THE CONSTRUCTION SITE (OR OTHER LOCATION ACCESSIBLE TO TDEC AND THE PUBLIC) FROM THE DATE CONSTRUCTION COMMENCES TO THE DATE OF FINAL STABILIZATION. (6.2)

11.4.2. PRIOR TO THE INITIATION OF LAND DISTURBING ACTIVITIES AND UNTIL THE SITE HAS MET THE FINAL STABILIZATION CRITERIA, CONTRACTOR OR THEIR DESIGNEE WILL POST A NOTICE NEAR THE MAIN ENTRANCE OF THE CONSTRUCTION SITE WITH THE FOLLOWING INFORMATION (3.3.3) (6.2.1):

11.4.2.1. A COPY OF THE NOTICE OF COVERAGE (NOC) WITH THE NPDES PERMIT NUMBER FOR THE PROJECT;

11.4.2.2. THE INDIVIDUAL NAME, COMPANY NAME, E-MAIL ADDRESS (IF APPLICABLE) AND TELEPHONE NUMBER OF THE LOCAL PROJECT SITE OWNER AND OPERATOR CONTACT;

11.4.2.3. A BRIEF DESCRIPTION OF THE PROJECT; AND

11.4.2.4. THE LOCATION OF THE SWPPP.

11.4.3. ALL INFORMATION DESCRIBED IN SECTION 11.4.2 MUST BE MAINTAINED IN LEGIBLE CONDITION. IF POSTING THIS INFORMATION NEAR A MAIN ENTRANCE IS INFEASIBLE DUE TO SAFETY CONCERNS, THE NOTICE SHALL BE POSTED IN A LOCAL BUILDING. THE NOTICE MUST BE PLACED IN A PUBLICLY ACCESSIBLE LOCATION WHERE CONSTRUCTION IS ACTIVELY UNDERWAY AND MOVED AS NECESSARY.

11.5. NOTICE OF TERMINATION

11.5.1. WHEN ALL STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES THAT ARE AUTHORIZED BY THE PERMIT ARE ELIMINATED BY FINAL STABILIZATION, THE PRIMARY PERMITTEE WILL SUBMIT A NOTICE OF TERMINATION (NOT) THAT IS SIGNED IN ACCORDANCE WITH THE PERMIT TO THE TDOT EFO.

11.5.2. FOR THE PURPOSES OF THE CERTIFICATION REQUIRED BY THE NOT, THE ELIMINATION OF STORMWATER DISCHARGES ASSOCIATED WITH THE CONSTRUCTION ACTIVITY MEANS:

11.5.2.1. ALL EARTH-DISTURBING ACTIVITIES ON THE SITE ARE COMPLETED AND ALL DISTURBED SOILS AT THE PORTION OF THE CONSTRUCTION SITE WHERE THE OPERATOR HAD CONTROL HAVE BEEN FINALLY STABILIZED.

11.5.2.2. ALL CONSTRUCTION MATERIALS, WASTE AND WASTE HANDLING DEVICES, AND ALL EQUIPMENT, AND VEHICLES THAT WERE USED DURING CONSTRUCTION HAVE BEEN REMOVED AND PROPERLY DISPOSED.

11.5.2.3. ALL STORMWATER CONTROLS THAT WERE INSTALLED AND MAINTAINED DURING CONSTRUCTION, EXCEPT THOSE THAT ARE INTENDED FOR LONG-TERM USE FOLLOWING TERMINATION OF PERMIT COVERAGE, HAVE BEEN REMOVED.

11.5.2.4. ALL POTENTIAL POLLUTANTS AND POLLUTANT GENERATING ACTIVITIES ASSOCIATED WITH CONSTRUCTION HAVE BEEN REMOVED.

11.5.2.5. THE PERMITTEE HAS IDENTIFIED WHO IS RESPONSIBLE FOR ONGOING MAINTENANCE OF ANY STORMWATER CONTROLS LEFT ON THE SITE FOR LONG-TERM USE FOLLOWING TERMINATION OF PERMIT COVERAGE.

11.5.2.6. TEMPORARY EPSC MEASURES HAVE BEEN OR WILL BE REMOVED AT AN APPROPRIATE TIME TO ENSURE FINAL STABILIZATION IS MAINTAINED.

11.5.2.7. ALL STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES FROM THE IDENTIFIED SITE THAT ARE AUTHORIZED BY A NPDES GENERAL PERMIT HAVE OTHERWISE BEEN ELIMINATED FROM THE PORTION OF THE CONSTRUCTION SITE WHERE THE OPERATOR HAD CONTROL.

11.6. RETENTION OF RECORDS (6.2)

THE PERMITTEE WILL RETAIN COPIES OF THE SWPPP, ALL REPORTS REQUIRED BY THE PERMIT, AND RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT FOR THE PROJECT FOR A PERIOD OF AT LEAST THREE (3) YEARS FROM THE DATE THE NOT WAS FILED.

12. SITE WIDE/PRIMARY PERMITTEE CERTIFICATION (7.7.5)

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED BY ME, OR UNDER MY DIRECTION OR SUPERVISION. THE SUBMITTED INFORMATION IS TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. AS SPECIFIED IN TENNESSEE CODE ANNOTATED SECTION 39-16-702(a)(4), THIS DECLARATION IS MADE UNDER PENALTY OF PERJURY.

AUTHORIZED PERSONNEL SIGNATURE (3.3.1)

PRINTED NAME

TITLE

DATE

13. SECONDARY PERMITTEE (OPERATOR) CERTIFICATION (7.7.6)

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE REVIEWED THIS DOCUMENT, ANY ATTACHMENTS, AND THE SWPPP REFERENCED ABOVE. BASED ON MY INQUIRY OF THE CONSTRUCTION SITE OWNER/DEVELOPER IDENTIFIED ABOVE AND/OR MY INQUIRY OF THE PERSON DIRECTLY RESPONSIBLE FOR ASSEMBLING THIS NOI AND SWPPP, I BELIEVE THE INFORMATION SUBMITTED IS ACCURATE. I AM AWARE THAT THIS NOI, IF APPROVED, MAKES THE ABOVE-DESCRIBED CONSTRUCTION ACTIVITY SUBJECT TO NPDES PERMIT NUMBER TNR100000, AND THAT CERTAIN OF MY ACTIVITIES ON-SITE ARE THEREBY REGULATED. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS, AND FOR FAILURE TO COMPLY WITH THESE PERMIT REQUIREMENTS. AS SPECIFIED IN TENNESSEE CODE ANNOTATED SECTION 39-16-702(a)(4), THIS DECLARATION IS MADE UNDER PENALTY OF PERJURY.

AUTHORIZED PERSONNEL SIGNATURE (3.3.1)

PRINTED NAME

TITLE

DATE

14. ENVIRONMENTAL PERMITS (9.0)

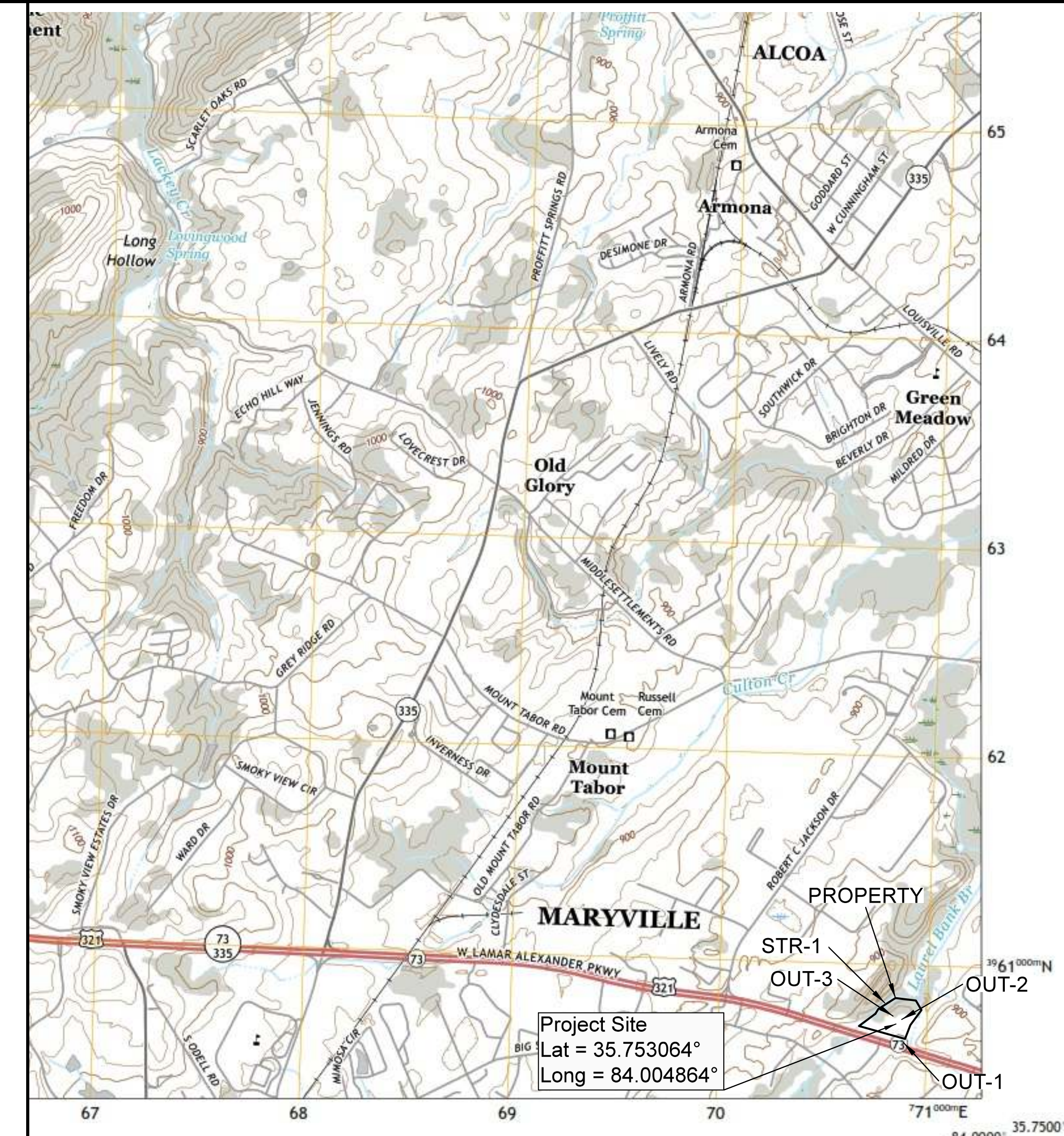
LIST ALL ENVIRONMENTAL PERMITS AND EXPIRATION DATES FOR PROJECT

ENVIRONMENTAL PERMITS			
PERMIT	YES OR NO	PERMIT OR TRACKING NO.	EXPIRATION DATE*
TDEC ARAP	NO		
USACE	NO		
TVA 26A	NO		
TDEC CGP	YES		
OTHER: TDEC SSDS	NO		

15. OUTFALL TABLE (3.5.1.d, 5.4.1.g)

OUTFALL INFORMATION							
EPSC STAGE	OUTFALL LABEL	SUB OUT-FALL	SLOPE (%)	STAGE 1 DRAINAGE AREA (AC)	STAGE 2 DRAINAGE AREA (AC)	SEDIMENT BASIN OR EQUIVALENT MEASURE(S) (YES, NO OR N/A)	RECEIVING RESOURCE
2	OUT-1	N/A	3.8	N/A	0.43	NO	STR-1
2	OUT-2	N/A	3.4	N/A	0.66	NO	STR-1
2	OUT-3	N/A	1.2	N/A	0.08	NO	STR-1

NOTE: ALL UNUSED FIELDS WITHIN THE OUTFALL TABLE ARE TO BE SHADED, HATCHED, OR REMOVED TO INDICATE THEIR NON-USAGE. SOME ROWS WERE LEFT FOR ADDITIONAL OUTFALLS IF NEEDED.



MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
 CITY OF MARYVILLE
 9th CIVIL DISTRICT
 BLOUNT COUNTY, TENNESSEE

Project

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Date	Revision	Comments
10/23/20	1	REVISION COMMENTS FROM CITY, TDEC AND TDOT

Drawn By: MBB
 Checked By: JLL
 Approved By: JLL
 LT Project No.: 2004019
 LT Drawing No.: D(O)263-R1
 Horiz. Scale: Date: 07/14/20

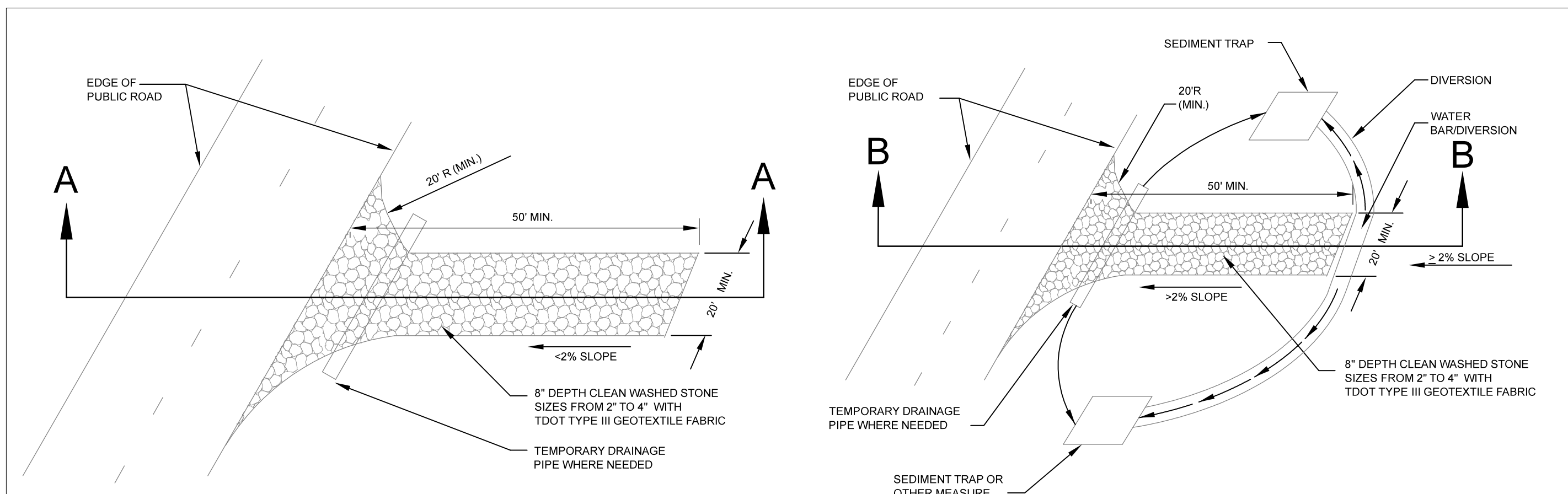
Sheet Title

Stormwater Pollution Prevention Plan

Sheet ID

C-404

Sheet No. 16



PLAN VIEW OF TEMPORARY CONSTRUCTION ROAD

CONSTRUCTION SPECIFICATIONS

A LAYER OF TDOT TYPE III GEOTEXTILE FABRIC IS REQUIRED TO STABILIZE AND SUPPORT THE AGGREGATE. THE GEOTEXTILE FABRIC SHOULD EXTEND THE FULL LENGTH AND WIDTH OF THE CONSTRUCTION EXIT. THE FABRIC SHOULD MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GEOTEXTILES, AASHTO M-288, EROSION CONTROL.

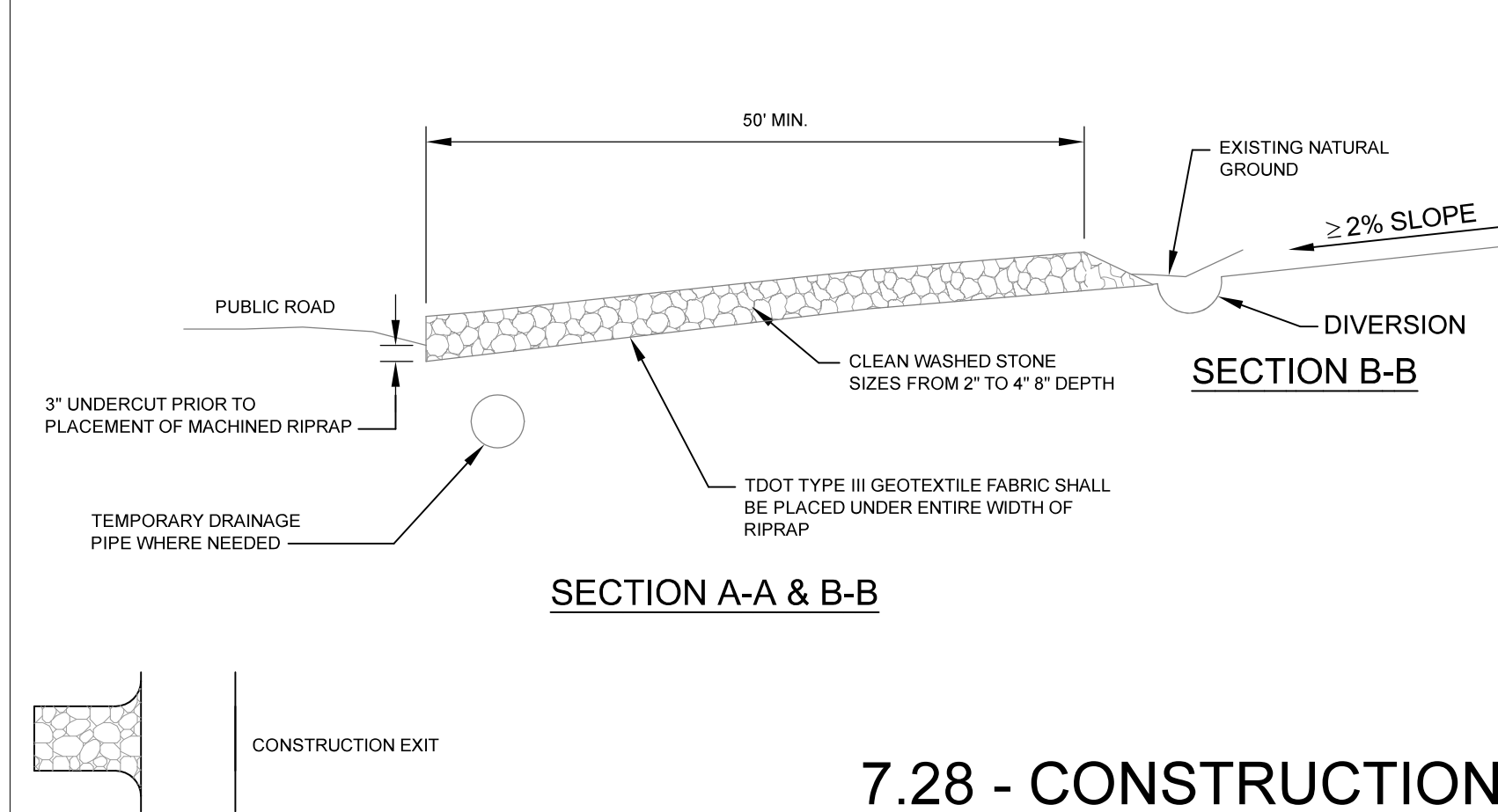
THE STONE PAD SHOULD BE CONSTRUCTED FROM CLEAN, WASHED STONE WITH 2 INCH TO 4 INCH GRADATION AND A MINIMUM THICKNESS OF 8 INCHES. ROCK MUST BE CLEAN WITH NO FINES. CRUSHER RUN AND ROAD BASE ARE NOT ACCEPTABLE MATERIALS FOR A CONSTRUCTION EXIT.

THE AREA WHERE THE PAD IS TO BE INSTALLED MUST BE UNDERCUT AT LEAST 3 INCHES, AND THEN THE GEOTEXTILE FABRIC SHOULD BE INSTALLED BEFORE PLACING THE STONE. CLEAR THE AREA OF ALL VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.

ON SITES WHERE THE GRADE TOWARD THE PUBLIC ROAD IS GREATER THAN 2%, A WATERBAR DIVERSION 6 TO 8 INCHES IN DEPTH WITH 3:1 SIDE SLOPES SHOULD BE CONSTRUCTED AT THE UPPER END OF THE CONSTRUCTION EXIT TO PREVENT STORMWATER FROM WASHING SEDIMENT OFF THE CONSTRUCTION EXIT AND INTO THE PUBLIC ROADWAY OR STORM DRAIN SYSTEM. OTHER DEVICES, SUCH AS BERMS, MAY ALSO BE USED TO DIVERT STORMWATER.

MAINTENANCE AND INSPECTION

THE EXIT MUST BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OF MATERIAL ONTO PUBLIC RIGHTS-OF-WAY OR INTO THE STORM DRAIN SYSTEM. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH FRESH STONE OR FULL REPLACEMENT OF STONE AS CONDITIONS DEMAND, AND REPAIR AND / OR CLEANOUT OF ANY RELATED DIVERSIONS AND SEDIMENT TRAPS. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED BY THE END OF THE DAY.



7.28 - CONSTRUCTION EXIT

CONSTRUCTION SPECIFICATIONS

ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE THE GROUND SURFACE. PONDING WATER DEPTH SHOULD NOT EXCEED 1.5 FEET.

CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL. CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST. ROLL THE FABRIC TOGETHER AND FASTEN TO ONE POST TO CREATE A STRONGER JOINT. WHERE JOINTS ARE NECESSARY, PLAN THE ROLL LAYOUT SO AS NOT TO HAVE JOINTS AT LOW POINTS.

DO NOT ATTACH FILTER FABRIC TO TREES.

WHEN SILT FENCE IS INSTALLED ADJACENT TO STREAMS, WETLANDS, AND OTHER NATURAL RESOURCES, SILT FENCE WITH BACKING SHOULD BE USED.

INSTALL POSTS NO MORE THAN 6 FEET APART.

INSTALL POSTS 2 FEET DEEP ON THE DOWNSTREAM SIDE OF THE SILT FENCE, AND AS CLOSE AS POSSIBLE TO THE FABRIC, ENABLING POSTS TO SUPPORT THE FABRIC FROM UPSTREAM WATER PRESSURE.

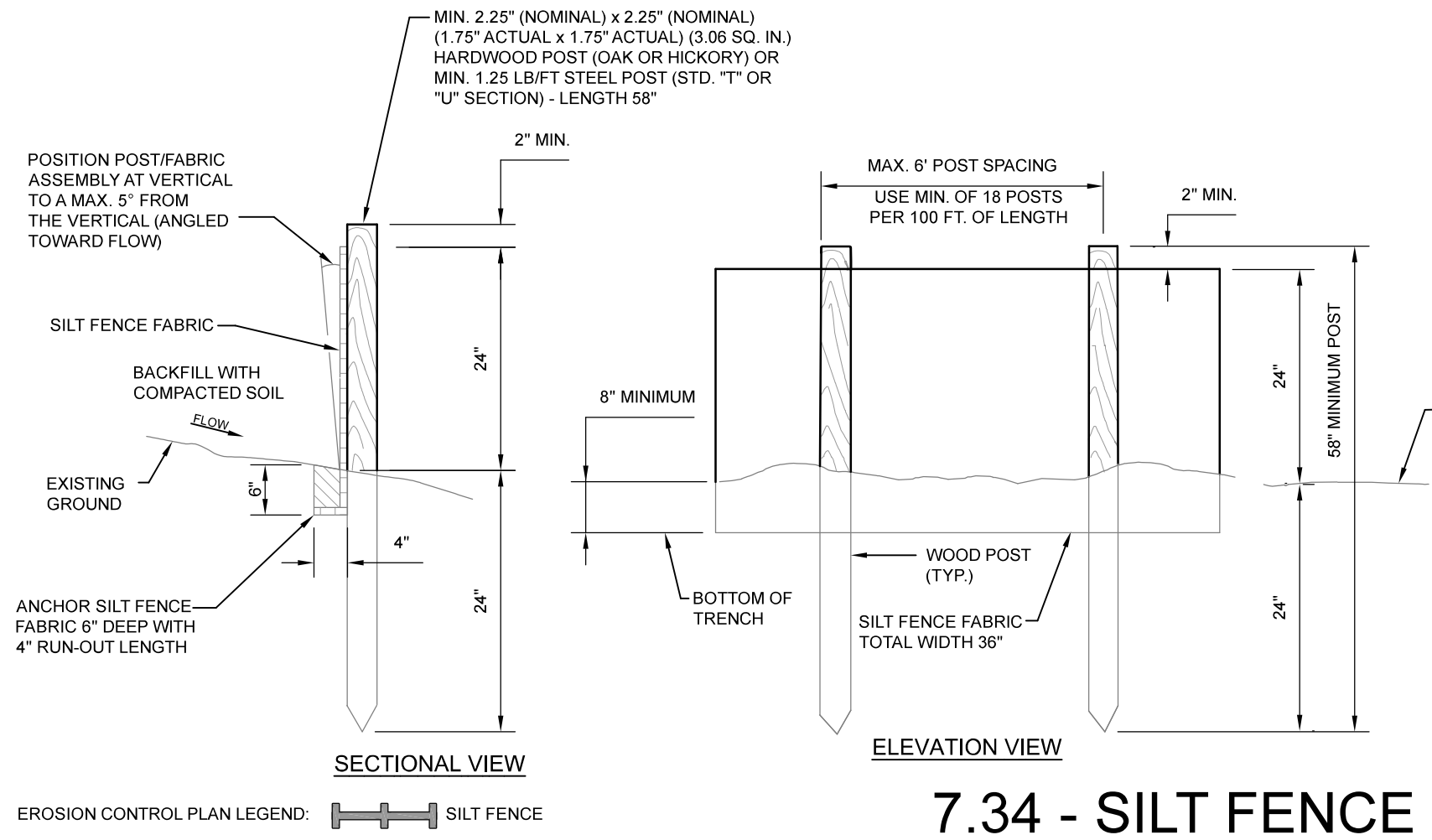
SECURELY ATTACH THE SILT FENCE FABRIC TO THE POSTS ON THE UPSTREAM SIDE OF THE POSTS. FOR STEEL POSTS, ATTACH FABRIC TO THE POSTS USING WIRE OR PLASTIC ZIP TIES WITH A MINIMUM 50 POUND TENSILE STRENGTH, AT LEAST 5 TO A POST. THREE TIES SHOULD BE INSTALLED IN THE UPPER 8 INCHES FOR TOP STRENGTH. TIES SHOULD BE INSTALLED ON THE DIAGONAL AS OPPOSED TO ON THE HORIZONTAL. TO GRAB MORE STRANDS, FOR HARDWOOD POSTS, ATTACH FABRIC WITH 17 GAUGE WIRE STAPLES, (0.75" WIDE x 0.5" LONG), AT LEAST 5 TO A POST. 3 STAPLES SHOULD BE INSTALLED IN THE UPPER 8 INCHES FOR TOP STRENGTH.

INSTALL J-HOOKS FOR CONFINING WATER BEHIND THE FENCE AND MAXIMIZING THE TRAPPING EFFICIENCY.

TRADITIONAL SILT FENCE TRENCHING METHOD FOR INSTALLATION

1. EXCAVATE TRENCH APPROX. 4" WIDE AND 6" DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER.

2. PLACE 10" OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO THE SILT FENCE PERFORMANCE.



7.34 - SILT FENCE

CONSTRUCTION SPECIFICATIONS

TRADITIONAL SILT FENCE TRENCHING METHOD FOR INSTALLATION

3. THE BASE OF BOTH END POSTS SHOULD BE AT LEAST 1" HIGHER THAN THE MIDDLE OF THE FENCE. CHECK WITH A LEVEL AS NECESSARY.

SLICING METHOD FOR INSTALLATION

1. A SLICING MACHINE CAN BE USED TO INSTALL SILT FENCE.

2. POSTS SHOULD BE SET A MAXIMUM 6' APART.

3. THE GEOTEXTILE FABRIC SHOULD BE INSERTED IN A SLIT IN THE SOIL 8-12" DEEP. THE SLIT SHOULD BE CREATED SUCH THAT A HORIZONTAL CHISEL POINT AT THE BASE OF A SOIL-SLICING BLADE SLIGHTLY DISRUPTS THE SOIL UPWARD AS THE BLADE SLICES THROUGH THE SOIL. THE GEOTEXTILE FABRIC SHOULD BE MECHANICALLY INSERTED DIRECTLY BEHIND THE SOIL-SLICING BLADE IN A SIMULTANEOUS OPERATION, ACHIEVING CONSISTENT PLACEMENT AND DEPTH. NO PLOWING OF SOIL IS ALLOWED FOR THE SLICING METHOD.

MAINTENANCE AND INSPECTION

REMOVE SEDIMENT ONCE IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER.

REPLACE FILTER FABRIC WHENEVER IT IS WORN OR HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS IS REDUCED.

ALL SEDIMENT ACCUMULATED AT THE FENCE SHOULD BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE FENCE IS REMOVED.

REPAIR SAGGING SILT FENCE TO PREVENT FAILURE OR OVERTOPPING.

MONITOR THE TOE FOR EVIDENCE OF PIPING OR EROSION. INSTALL J-HOOKS WHERE RUNOFF FLOWS ALONG THE TOE OF THE FENCING TO PREVENT UNDERMINING.

SILT FENCE SHOULD REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

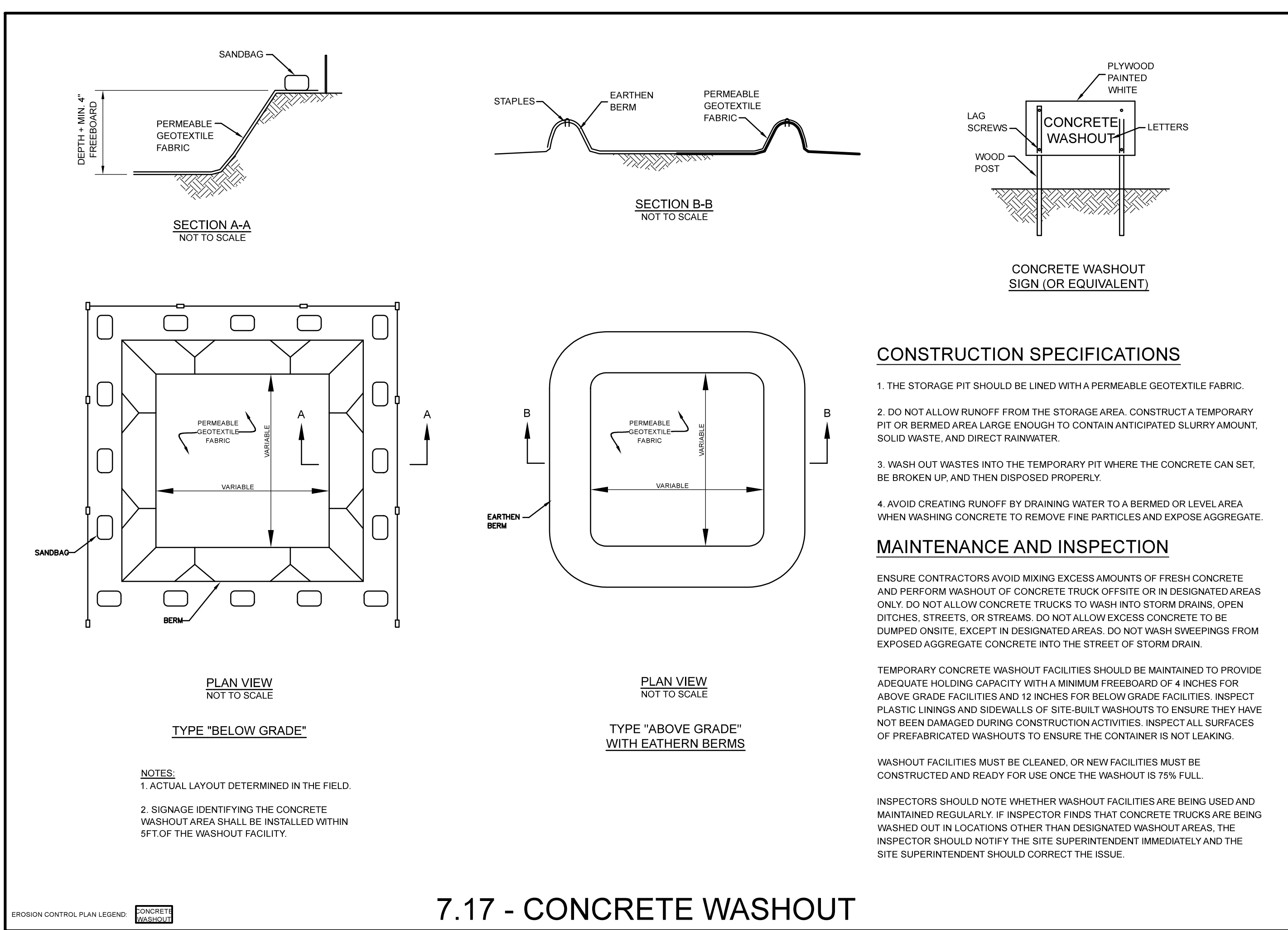
	TEST MATERIAL	WITHOUT BACKING	WITH BACKING
GEOTEXTILE FABRIC TYPE		WOVEN SLIT FILM	WOVEN MONOPLACEMENT
APPARENT OPENING SIZE	ASTM D4751	#30 TO #70 STANDARD SIEVE	#70 TO #100 STANDARD SIEVE
WATER FLUX	ASTM D4491	≥ 4 GPM / SF	≥ 18 GPM / SF
TENSILE STRENGTH	ASTM D4632	≥ 120 LB (WARP DIRECTION) 100 LB (FILL DIRECTION)	≥ 310 LB (WARP DIRECTION) 200 LB (FILL DIRECTION)
UV STABILITY (AFTER 500 HRS)	ASTM D4355	≥ 70%	≥ 90%
ELONGATION	ASTM D4632	≤ 20% MAX.	---
BURST STRENGTH	ASTM D3786	≥ 250 PSI	≥ 400 PSI
PUNCTURE STRENGTH	ASTM D4633	≥ 60 LB	≥ 105 LB
TRAPEZOIDAL TEAR	ASTM D4533	≥ 50 LB (WARP DIRECTION) 40 LB (FILL DIRECTION)	≥ 100 LB (WARP DIRECTION) 60 LB (FILL DIRECTION)

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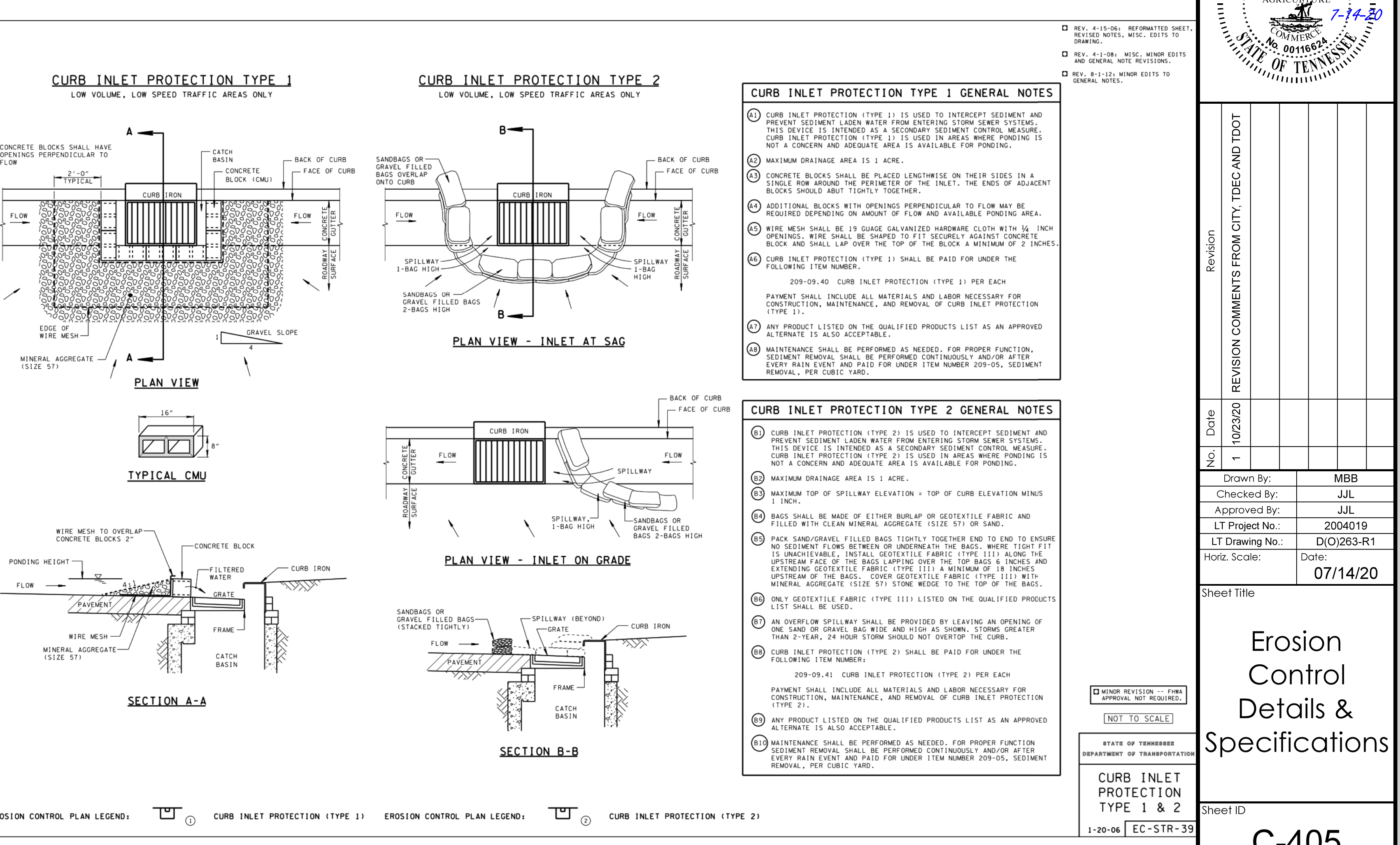
Project

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7.17 - CONCRETE WASHOUT



Revision

REVISION COMMENTS FROM CITY, DEB AND TDOT

Date

No. 1 10/23/20

Drawn By: MBB

Checked By: JLL

Approved By: JLL

LT Project No.: 2004019

LT Drawing No.: D(0)263-R1

Horiz. Scale: Date: 07/14/20

Sheet Title

Erosion Control Details & Specifications

Sheet ID

C-405

Sheet No. 17

CONSTRUCTION SPECIFICATIONS

THE TOPSOIL STOCKPILE MUST BE PROTECTED AGAINST EROSION. STABILIZE THE STOCKPILE WITH A TEMPORARY OR PERMANENT GROUND COVER. IN ADDITION, PERIMETER MEASURES SHOULD BE PROVIDED AROUND THE STOCKPILE AREA TO PREVENT SEDIMENT MIGRATION.

ONCE GRADING ON ANY PORTION OF THE SITE HAS REACHED FINAL GRADE, TOPSOIL SHOULD BE SPREAD PRIOR TO FINAL STABILIZATION. TOPSOIL PLACEMENT SHOULD NOT BE SPECIFIED IN AREAS WHERE SLOPES ARE STEEPER THAN 2:1.

THE DEPTH OF TOPSOIL TO BE APPLIED SHALL BE 5 INCHES UNSETTLED.

TOPSOIL QUALITY

1. GENERAL CHARACTERISTICS - TOPSOIL SHOULD BE FRIABLE AND LOAMY, FREE OF DEBRIS, OBJECTIONABLE WEEDS AND STONES, AND CONTAIN NO TOXIC SUBSTANCES THAT MAY BE HARMFUL TO PLANT GROWTH. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE.

2. TEXTURE - LOAM, SANDY LOAM, AND SILT LOAM ARE BEST. SANDY CLAY LOAM, CLAY LOAM, AND LOAMY SAND ARE FAIR. HEAVY CLAY AND ORGANICS SUCH AS PEAT OR MUCK SHOULD NOT BE USED AS TOPSOIL.

3. ORGANIC MATTER CONTENT - ORGANIC MATERIALS SHOULD BE GREATER THAN 2% BY WEIGHT.

4. FERTILITY AND NUTRIENTS - pH RANGE SHOULD BE 5.5 TO 7.0. LIMING MAY BE SPECIFIED IF pH IS LESS THAN 5.5. SOIL TEST FOR NUTRIENTS BASED UPON THE TYPE OF VEGETATION TO BE ESTABLISHED. ORGANIC AND INORGANIC SOIL AMENDMENTS MAY BE APPLIED TO TOPSOIL TO ACHIEVE THE DESIRED CHARACTERISTICS.

STRIPPING

STRIP TOPSOIL ONLY FROM AREAS THAT WILL BE DISTURBED BY EXCAVATION, FILLING, PAVING, OR COMPACTION BY EQUIPMENT. STRIPPING DEPTH VARIES AND SHOULD BE SITE SPECIFIC.

STOCKPILING

TOPSOIL STOCKPILES SHOULD BE LOCATED TO AVOID SLOPES, NATURAL AND ARTIFICIAL DRAINAGE WAYS, AND CONSTRUCTION TRAFFIC. MULTIPLE STOCKPILES NEAR AREAS TO BE STRIPPED MAY BE SPECIFIED ON LARGE SITES SO THAT RESPREADING TOPSOIL IS MORE EFFICIENT.

SEDIMENT CONTROLS SHOULD BE PLACED WHERE NECESSARY AROUND STOCKPILES TO PREVENT ERODED TOPSOILS FROM LEAVING THE STOCKPILE AREA. TEMPORARY SEEDING PRACTICES SHOULD BE PERFORMED NO MORE THAN 15 DAYS AFTER THE FORMATION OF THE STOCKPILE. PERMANENT GROUNDCOVERS SHOULD BE CONSIDERED WHERE TOPSOIL STOCKPILES ARE TO BE INACTIVE FOR LONGER PERIODS OF TIME.

SPREADING

TOPSOIL SHOULD BE SPREAD ONLY WHEN GRADING ACTIVITIES HAVE BEEN COMPLETED AND PERMANENT VEGETATION IS TO BE APPLIED. GRADES SHOULD BE MAINTAINED ACCORDING TO THE APPROVED PLANS, AND FINAL GRADES SHOULD NOT BE ALTERED BY ADDING TOPSOIL. THE SUBGRADE SURFACE SHOULD BE ROUGHENED BY DISKING OR SCARIFYING TO A MINIMUM DEPTH OF 4 INCHES PRIOR TO SPREADING TOPSOIL TO ENSURE BONDING OF THE TOPSOIL AND SUBSOILS. APPLY LIME OR FERTILIZER TO SUBGRADE BEFORE ROUGHENING.

TOPSOIL SHOULD BE UNIFORMLY DISTRIBUTED TO A MINIMUM DEPTH OF 5 INCHES AND COMPACTED. DO NOT SPREAD TOPSOIL WHILE IT IS EXCESSIVELY WET OR FROZEN. UNIFORMLY MOISTEN EXCESSIVELY DRY SOIL THAT IS NOT WORKABLE OR TOO DUSTY. CORRECT ANY IRREGULARITIES IN THE SURFACE TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS. AFTER TOPSOIL APPLICATION, FOLLOW PROCEDURES FOR PERMANENT VEGETATION.

MAINTENANCE AND INSPECTION

TOPSOILED AREAS SHOULD BE INSPECTED FOR EROSION, DEPRESSIONS OR RIDGES, ROCKS, AND OTHER FOREIGN MATERIAL PRIOR TO BEGINNING PERMANENT VEGETATION APPLICATIONS. THESE AREAS ARE SUBJECT TO ONGOING INSPECTIONS AND MAINTENANCE UNTIL FINAL PERMANENT STABILIZATION HAS BEEN ACHIEVED AND A NOTICE OF TERMINATION HAS BEEN SUBMITTED.

7.3 - TOPSOILING

CONSTRUCTION SPECIFICATIONS

SOIL QUALITY

ALL AREAS SUBJECT TO CLEARING AND GRADING THAT HAVE NOT BEEN COVERED BY IMPERVIOUS SURFACES, INCORPORATED INTO A DRAINAGE FACILITY, OR ENGINEERED AS STRUCTURAL FILL OR SLOPE SHALL AT PROJECT COMPLETION DEMONSTRATE THE FOLLOWING:

1. A TOPSOIL LAYER WITH A MINIMUM ORGANIC MATTER CONTENT OF 10% DRY WEIGHT IN PLANTING BEDS, AND 5% ORGANIC MATTER CONTENT IN TURF AREAS, AND A pH FROM 6.0 TO 8.0 OR MATCHING THE pH OF THE ORIGINAL UNDISTURBED SOIL. THE TOPSOIL LAYER SHALL HAVE A MINIMUM DEPTH OF 8 INCHES EXCEPT WHERE TREE ROOTS LIMIT THE DEPTH OF INCORPORATION OF AMENDMENTS NEEDED TO MEET THE CRITERIA. SUBSOILS BELOW THE TOPSOIL LAYER SHOULD BE SCARIFIED AT LEAST 4 INCHES WITH SOME INCORPORATION OF THE UPPER MATERIAL TO AVOID STRATIFIED LAYERS, WHERE FEASIBLE.

2. PLANTING BEDS MUST BE MULCHED WITH 2 INCHES OF ORGANIC MATERIAL.

3. QUALITY OF COMPOST AND OTHER MATERIALS USED TO MEET THE ORGANIC CONTENT REQUIREMENTS: A. THE COMPOST MUST HAVE AN ORGANIC MATTER CONTENT OF 35% TO 65%, AND A CARBON TO NITROGEN RATION BELOW 25:1.

B. CALCULATED AMENDMENT RATES MAY BE MET THROUGH USE OF COMPOSTED MATERIALS AS DEFINED ABOVE.

C. THE RESULTING SOIL SHOULD BE CONDUCTIVE TO THE TYPE OF VEGETATION TO BE ESTABLISHED.

THE SOIL QUALITY GUIDELINES LISTED ABOVE CAN BE MET BY USING ONE OF THE METHODS LISTED BELOW:

1. LEAVE UNDISTURBED NATIVE VEGETATION AND SOILD, AND PROTECT FROM COMPACTION DURING CONSTRUCTION.

2. AMEND EXISTING SITE TOPSOIL OR SUBSOIL EITHER AT DEFAULT "PRE-APPROVED" RATES, OR AT CUSTOM CALCULATED RATES BASED ON SPECIFIER'S TESTS OF THE SOIL AND AMENDMENT.

3. STOCKPILE EXISTING TOPSOIL DURING GRADING, AND REPLACE IT PRIOR TO PLANTING. STOCKPILED TOPSOIL MUST ALSO BE AMENDED IF NEEDED TO MEET THE ORGANIC MATTER OR DEPTH REQUIREMENTS, EITHER AT A DEFAULT "PRE-APPROVED" RATE OR AT A CUSTOM CALCULATED RATE.

4. IMPORT TOPSOIL MIX OF SUFFICIENT ORGANIC CONTENT AND DEPTH TO MEET THE REQUIREMENTS. MORE THAN ONE METHOD MAY BE USED ON DIFFERENT PORTIONS OF THE SAME SITE. SOIL THAT ALREADY MEETS THE DEPTH AND ORGANIC MATTER QUALITY STANDARDS, AND IS NOT COMPACTED, DOES NOT NEED TO BE AMENDED.

MAINTENANCE AND INSPECTION

SOIL QUALITY AND DEPTH SHOULD BE ESTABLISHED TOWARD THE END OF CONSTRUCTION AND ONCE ESTABLISHED, SHOULD BE PROTECTED FROM COMPACTION, SUCH AS FROM LARGE MACHINERY USE, AND FROM EROSION.

SOIL SHOULD BE PLANTED AND MULCHED AFTER INSTALLATION.

PLANT DEBRIS OR ITS EQUIVALENT SHOULD BE LEFT ON THE SOIL SURFACE TO REPLENISH ORGANIC MATTER.

IT SHOULD BE POSSIBLE TO REDUCE USE OF IRRIGATION, FERTILIZER, HERBICIDES AND PESTICIDES. THESE ACTIVITIES SHOULD BE ADJUSTED WHERE POSSIBLE, RATHER THAN CONTINUING TO IMPLEMENT FORMERLY ESTABLISHED PRACTICES.

7.15 - SOIL ENHANCEMENT

CONSTRUCTION SPECIFICATIONS

APPLY HYDROMULCH / BFM WITHIN 24 HOURS OF SEED APPLICATION. DO NOT APPLY ANY TYPE OF HYDRAULIC SEEDING OR MULCHING DURING HIGH WIND CONDITIONS OR VERY DRY CONDITIONS.

PROHIBIT FOOT, EQUIPMENT, AND VEHICLE TRAFFIC ACROSS THE AREA AFTER APPLICATION.

HYDRAULIC EQUIPMENT AND ADEQUATE WATER SUPPLY ARE NECESSARY.

APPLY THE HYDROSEED / HYDROMULCH / BFM UNIFORMLY LEAVING NO VISIBLE SOIL. TO AID IN VISUALLY VERIFYING THE CORRECT APPLICATION, A DYE IS TYPICALLY ADDED TO THE MIXTURE. TO ENSURE THE PROPER APPLICATION RATE, MARK OFF A SECTION ON THE GROUND, SUCH AS A 1,000 SF AREA, AND CALIBRATE THE SPRAYER TO APPLY THE CORRECT SEEDING RATE FOR 1,000 SF.

MAINTENANCE AND INSPECTION

INSPECT SLOPES FOR RILL FORMATION. IF NECESSARY, MAKE REPAIRS, RESEED AND REAPPLY HYDRAULIC MATERIAL.

IF RILLING OCCURS THIS MEANS THAT SLOPES ARE TOO STEEP FOR HYDRO APPLICATION. REPAIR THE SURFACE, RESEED AND COVER WITH A STRAW MULCH TO PREVENT EROSION. MULCH SHOULD BE TACKED OR CRIMPED DEPENDING ON THE SOIL TYPE.

7.12 - HYDRO APPLICATIONS

CONSTRUCTION SPECIFICATIONS

BEFORE APPLYING MULCH, COMPLETE THE REQUIRED GRADING, INSTALL SEDIMENT CONTROL PRACTICES, AND IF APPLYING SEED, PREPARE THE SEED BED. WHEN APPLYING SEED IN COMBINATION WITH MULCH, APPLY THE SEED BEFORE MULCH EXCEPT IN THE FOLLOWING CASES:

1. SEED IS APPLIED AS A PART OF A HYDROSEEDER SLURRY CONTAINING MULCH.

2. A HYDROSEEDER SLURRY IS APPLIED OVER STRAW.

APPLICATION

SPREAD MULCH UNIFORMLY BY HAND OR WITH A MULCH BLOWER. WHEN SPREADING MULCH BY HAND, DIVIDE THE AREA TO BE MULCHED INTO SECTIONS OF APPROXIMATELY 1000 SF AND PLACE 70-90 LBS OF STRAW (1.5 TO 2 BALES) IN EACH SECTION TO FACILITATE UNIFORM DISTRIBUTION. AFTER SPREADING MULCH, NO MORE THAN 25% OF THE SOIL SURFACE SHOULD BE VISIBLE. IN HYDROSEEDING APPLICATIONS A GREEN DYE ADDED TO THE SLURRY ASSURES A UNIFORM APPLICATION.

ANCHORING

STRAW MULCH MUST BE ANCHORED IMMEDIATELY AFTER SPREADING. THE FOLLOWING METHODS MAY BE USED:

1. MULCH ANCHORING TOOL. STRAW MULCH MAY BE PRESSED INTO THE SOIL IMMEDIATELY AFTER THE MULCH IS SPREAD. A SPECIAL CRIMPER OR DISK HARROW WITH THE DISCS SET STRAIGHT MAY BE USED. SERRATED DISCS ARE PREFERRED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART. THE EDGES OF THE DISCS SHALL BE DULL ENOUGH TO PRESS INTO THE GROUND WITHOUT CUTTING IT. MULCH SHOULD NOT BE FLOWED INTO THE SOIL. THIS METHOD IS LIMITED ON SLOPES NO STEEPER THAN 3:1, WHERE EQUIPMENT CAN OPERATE SAFELY. OPERATE MACHINERY ON THE CONTOUR.

2. LIQUID MULCH BINDERS: APPLICATION OF LIQUID MULCH BINDERS AND TACKIFIERS SHOULD BE HEAVIEST AT THE EDGES, CRESTS OF RIDGES, AND BANKS TO RESIST WIND. BINDERS SHOULD BE APPLIED UNIFORMLY TO THE REMAINING AREA. BINDERS MUST BE APPLIED AFTER THE MULCH IS SPREAD, OR MAY BE SPRAYED INTO THE MULCH AS IT IS BEING APPLIED. APPLYING THE STRAW AND BINDER TOGETHER IS THE MOST EFFECTIVE METHOD. LIQUID BINDERS INCLUDE EMULSIFIED ASPHALT AND AN ARRAY OF COMMERCIALY AVAILABLE SYNTHETIC BINDERS.

RAPID SETTING (RS OR CRS) IS FORMULATED FOR CURING IN LESS THAN 24 HOURS, AND IS BEST USED IN FALL AND SPRING. SLOW SETTING (SS OR CSS) IS FORMULATED FOR USE DURING HOT, DRY WEATHER, REQUIRING 48 HOURS OR MORE CURING TIME.

APPLY ASPHALT AT 0.1 GALLONS PER SQUARE YARD (10 GAL PER 1000 SF) IN TRAFFIC AREAS, UNCURED ASPHALT CAN BE PICKED UP ON SHOES AND CAUSE DAMAGE TO RUGS, CLOTHING, ETC. USE TYPES RS OR CRS TO MINIMIZE SUCH PROBLEMS.

SYNTHETIC BINDERS MAY BE USED TO ANCHOR MULCH. FOLLOW MANUFACTURER'S RECOMMENDED APPLICATION METHOD AND RATE.

3. MULCH NETTINGS. LIGHTWEIGHT PLASTIC, COTTON, JUTE, WIRE, OR PAPER NETS MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NOTE THAT SINGLE NET RECP'S WITH INTEGRATED MULCH MAY BE USED INSTEAD OF SEPARATE MULCH WITH NETTING.

MAINTENANCE AND INSPECTION

INSPECT ALL MULCHES PERIODICALLY, AND AFTER RAINSTORMS TO CHECK FOR RILL EROSION, DISLOCATION OR FAILURE. WHERE EROSION IS OBSERVED, APPLY ADDITIONAL MULCH. IF WASHOUT OCCURS, REPAIR THE SLOPE GRADE, RESEED AND REINSTALL MULCH. CONTINUE INSPECTING MULCHED AREAS UNTIL VEGETATION HAS FIRMLY ESTABLISHED OR UNTIL CONSTRUCTION ACTIVITIES RESUME IN THE AREA.

7.6 - STABILIZATION WITH STRAW MULCH

CONSTRUCTION SPECIFICATIONS

1. PLACE BARRIERS TO PREVENT APPROACH OF EQUIPMENT WITHIN THE DRIP LINE OF THE TREES TO BE PRESERVED.

2. DO NOT NAIL BOARDS TO TREES DURING BUILDING OPERATIONS.

3. DO NOT CUT TREE ROOTS INSIDE THE DRIP LINE.

4. DO NOT PLACE EQUIPMENT, CONSTRUCTION MATERIALS, TOPSOIL, OR FILL DIRT WITHIN THE LIMIT OF THE DRIP LINE OF TREES TO BE PRESERVED.

5. IF A TREE MARKED FOR PRESERVATION IS DAMAGED, REMOVE AND REPLACE WITH A TREE OF THE SAME OR SIMILAR SPECIES, 2-INCH CALIPER OR LARGER, FROM BALLED AND BURLAPED NURSERY STOCK WHEN ACTIVITY IN THE AREA IS COMPLETE.

6. DURING FINAL SITE CLEANUP, REMOVE BARRIERS FROM AROUND TREES.

MAINTENANCE AND INSPECTION

IN SPITE OF PRECAUTIONS, SOME DAMAGE TO PROTECTED TREES MAY OCCUR. IN SUCH CASES, REPAIR ANY DAMAGE TO THE CROWN, TRUNK OR ROOT SYSTEM IMMEDIATELY.

REPAIR ROOTS BY CUTTING OFF DAMAGED PORTIONS. SPREAD PEAT MOSS OR MOIST TOPSOIL OVER EXPOSED ROOTS.

REPAIR DAMAGE TO BARK BY TRIMMING AROUND THE DAMAGED AREA, TAPER THE CUT TO PROVIDE DRAINAGE, AND APPLY TREE PAINT.

CUT OFF ALL DAMAGED TREE LIMBS ABOVE THE TREE COLLAR AT THE TRUNK OR MAIN BRANCH. USE THREE SEPARATE CUTS TO AVOID PEELING BARK FROM HEALTHY AREAS OF THE TREE.

7.4 - TREE PRESERVATION

CONSTRUCTION SPECIFICATIONS

GRADING AND SHAPING

EXCESSIVE WATER RUNOFF SHALL BE REDUCED BY PROPERLY DESIGNED AND INSTALLED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DITCHES, DIKES, DIVERSIONS AND SEDIMENT BASINS. NO SHAPING OR GRADING IS REQUIRED IF SLOPES CAN BE STABILIZED BY HAND-SEEDED VEGETATION OR IF HYDRAULIC SEEDING EQUIPMENT IS TO BE USED.

SEEDBED PREPARATION

GOOD SEEDBED PREPARATION IS ESSENTIAL TO SUCCESSFUL PLANT ESTABLISHMENT. A GOOD SEEDBED IS WELL PULVERIZED, LOOSE, AND UNIFORM. WHERE HYDROSEEDING METHODS ARE USED, THE SURFACE MAY BE LEFT WITH MORE IRREGULAR SURFACE OF LARGE CLODS AND STONES.

LIMING

APPLY LIME ACCORDING TO SOIL TEST RECOMMENDATIONS. APPLY LIMESTONE UNIFORMLY AND INCORPORATE INTO THE TOP 4-6 INCHES OF SOIL. SOILS WITH A pH OF 6 OR HIGHER DO NOT NEED TO BE LIMED.

FERTILIZER

SOIL ANALYSIS SHALL BE PERFORMED PRIOR TO THE APPLICATION OF FERTILIZER TO ANY PORTION OF THE SITE. BOTH FERTILIZER AND LIME SHOULD BE INCORPORATED INTO THE TOP 4-6 INCHES OF SOIL. IF A HYDRAULIC SEEDER IS USED, DO NOT MIX SEED AND FERTILIZER MORE THAN 30 MINUTES BEFORE THE APPLICATION.

SURFACE ROUGHENING

IF RECENT TILLAGE OPERATIONS HAVE RESULTED IN A LOOSE SURFACE, ADDITIONAL ROUGHENING MAY NOT BE NECESSARY. EXCEPT TO BREAK UP LARGE CLODS, IF RAINFALL CAUSED THE SURFACE TO BECOME SEALED OR CRUSTED, LOOSEN IT JUST PRIOR TO SEEDING BY DISKING, RAKING, HARROWING, OR OTHER SUITABLE METHODS. GROOVE OR FURROW SLOPES STEEPER THAN 3:1 ON THE CONTOUR BEFORE SEEDING.

SEEDING

SELECT A NON-INVASIVE GRASS OR GRASS-LEGUME MIXTURE SUITABLE TO THE AREA AND SEASON OF THE YEAR. SEE SEEDING RECOMMENDATION CHARTS FOR SUGGESTIONS OF TEMPORARY SEEDING SPECIES. ALTHOUGH NATIVE PLANTS ARE PREFERRED, THERE ARE CURRENTLY NO AVAILABLE NATIVE SPECIES THAT ARE NOT COST PROHIBITIVE. NON-INVASIVE ANNUAL PLANTS ARE PREFERRED. SEED SHALL BE APPLIED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDRAULIC SEEDER. DRILL OR CULTIPACKER SEEDERS SHOULD NORMALLY PLACE SEED 0.25 TO 0.50 INCHES DEEP. APPROPRIATE DEPTH OF PLANTING IS 10 TIMES THE SEED DIAMETER. SOIL SHOULD BE RAKED LIGHTLY TO COVER SEED WITH SOIL IF SEED BY HAND.

MULCHING

THE USE OF MULCH WILL HELP ENSURE ESTABLISHMENT UNDER NORMAL CONDITIONS, AND IS ESSENTIAL TO SEEDING SUCCESS UNDER HARSH SITE CONDITIONS. HARSH SITE CONDITIONS INCLUDE: SEEDING IN FALL FOR WINTER COVER; SLOPES STEEPER THAN 3:1; EXCESSIVELY HOT OR DRY WEATHER; ADVERSE SOILS; AND AREAS RECEIVING CONCENTRATED FLOW.

IRRIGATION

DURING TIMES OF DROUGHT, WATER SHALL BE APPLIED AT A RATE NOT CAUSING RUNOFF AND EROSION. THE SOIL SHALL BE THOROUGHLY WETTED TO A DEPTH THAT WILL ENSURE GERMINATION OF THE SEED. SUBSEQUENT APPLICATIONS SHOULD BE MADE AS NEEDED. NEWLY SEEDER AREAS REQUIRE MORE WATER THAN MORE MATURE PLANTS.

MAINTENANCE AND INSPECTION

RESEED AND MULCH AREAS WHERE SEEDLING EMERGENCE IS POOR OR WHERE EROSION OCCURS, AS SOON AS POSSIBLE. DO NOT MOW.

SEEDING RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SPECIES RATE (LB / ACRE)
RYE 120

SEEDING DATES
EAST: ABOVE 2500 FEET: FEB 15 - MAY 15
BELOW 2500 FEET: FEB 1 - MAY 1

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LBS/ACRE OF GROUND AGRICULTURAL LIMESTONE AND 750 LBS/ACRE OF 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LBS/ACRE OF STRAW ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

SEEDING RECOMMENDATIONS FOR SUMMER

SPECIES RATE (LB / ACRE)
OATS 50
BROWN TOP MILLET 30

SEEDING DATES
EAST: MAY 15 - AUG 15

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LBS/ACRE OF GROUND AGRICULTURAL LIMESTONE AND 750 LBS/ACRE OF 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LBS/ACRE OF STRAW ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

SEEDING RECOMMENDATIONS FOR FALL

SPECIES RATE (LB / ACRE)
OATS 30
WINTER WHEAT 30

SEEDING DATES
EAST: AUG 15 - DEC 30

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LBS/ACRE OF GROUND AGRICULTURAL LIMESTONE AND 750 LBS/ACRE OF 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LBS/ACRE OF STRAW ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE. IF NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/AC CRIMSON CLOVER IN LATE FEBRUARY OF EARLY MARCH.

MAINTENANCE AND INSPECTION

ANY AREAS THAT HAVE BEEN WASHED OUT DUE TO HIGH STORMWATER FLOWS, AREAS THAT HAVE BEEN DISTURBED BY BLOWING WIND, AND AREAS THAT DO NOT SHOW GOOD GERMINATION SHOULD BE RETREATED.

INSPECT SEEDER AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEEDINGS WITHIN THE SAME SEASON, IF POSSIBLE.

RESEEDING: IF A STAND OF GRASS HAS INADEQUATE COVER, RE-EVALUATED THE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. RE-ESTABLISH THE STAND AFTER SEEDBED PREPARATION OR OVER-SEED THE STAND. CONSIDER SEEDING TEMPORARY, ANNUAL SPECIES IF THE TIME OF YEAR IS NOT APPROPRIATE FOR PERMANENT SEEDING.

Table with 4 columns: ZONE, BEST DATES, MARGINAL DATES, PREFERRED RATE / MIX (LBS / AC PLS). Rows include various elevation and slope categories with corresponding seeding dates and mixtures like BROWNTOP MILLET, PURPLE TOP, and MONARDA (BERGAMOT).

Table with 4 columns: ZONE, BEST DATES, MARGINAL DATES, PREFERRED RATE / MIX (LBS / AC PLS). Rows include various elevation and slope categories with corresponding seeding dates and mixtures like KY 31 FESCUE, KOREAN LESPEDEZA, and CROWN VETCH.

MARYVILLE RETAIL SITE
1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
PARCEL ID: MAP 57 PARCEL 9.06
CITY OF MARYVILLE
9th CIVIL DISTRICT
BLOUNT COUNTY, TENNESSEE

Project

LAND TECH CIVIL ENGINEERING & LAND SURVEYING
100 McCaughey Road, Knoxville, TN 37918
865.978.6510 www.landtechco.com



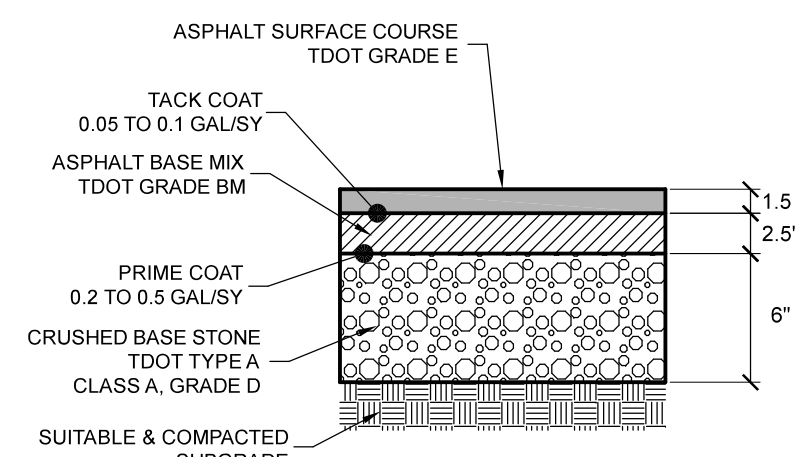
Table with 2 columns: No., Date. Row 1: 1, 10/23/20.

Table with 2 columns: No., Date. Row 1: 1, 10/23/20.

Erosion Control Stabilization Specifications
Sheet No. 18
C-406

GENERAL NOTES

CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF KNOXVILLE TECHNICAL SPECIFICATIONS SECTIONS 4.0 - GRADING; 5.0 - MINERAL AGGREGATE BASE; 6.0 - PRIME COAT; 7.0 - TACK COAT; 9.0 - BITUMINOUS PLANT MIX BASE; AND 10.0 - ASPHALTIC CONCRETE SURFACE; AND TDOT STANDARD SPECIFICATIONS PART 4 - FLEXIBLE SURFACES.

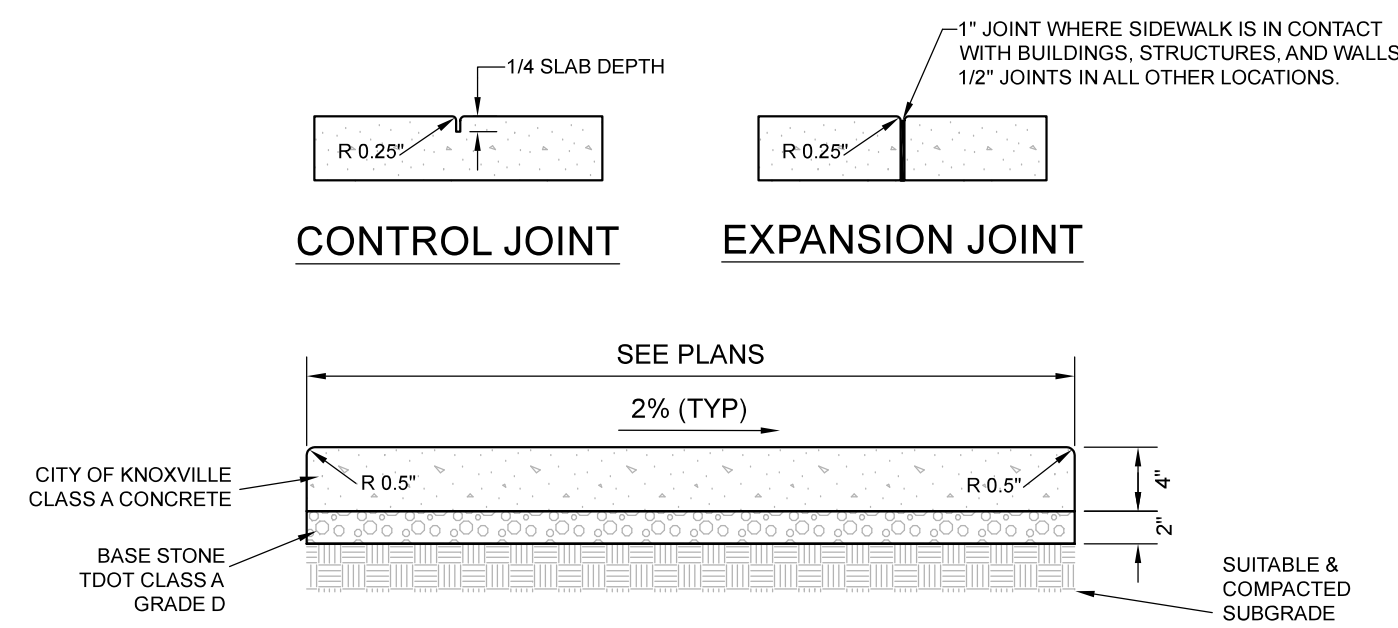


ASPHALT PAVEMENT - STANDARD DUTY

NOT TO SCALE

GENERAL NOTES

1. SIDEWALK, CONTROL JOINT AND EXPANSION JOINT CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF KNOXVILLE TECHNICAL SPECIFICATIONS SECTION 13.0 - CONCRETE SIDEWALKS, DRIVEWAYS, AND MEDIAN STRIP; AND TDOT STANDARD SPECIFICATIONS SECTION 701 AND STANDARD DETAIL RP-S-7.

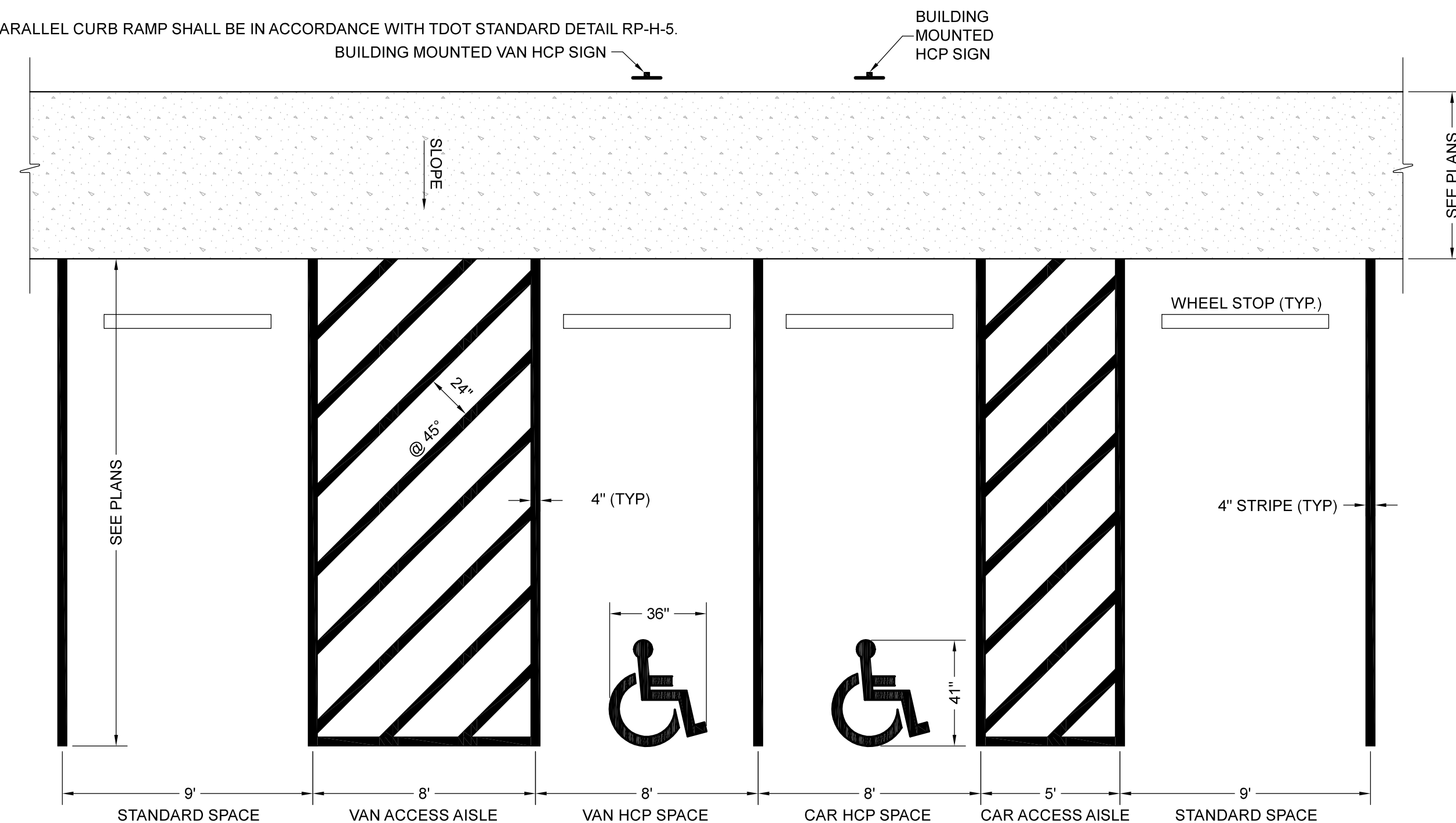


CONCRETE SIDEWALKS

NOT TO SCALE

GENERAL NOTES

- HANDICAP PARKING (HCP) SPACES SHALL BE IN ACCORDANCE WITH ADA GUIDELINES AND LOCAL CODES.
- SLOPE OF HCP SPACES SHALL BE 2% MAXIMUM.
- PAVEMENT MARKINGS SHALL BE WHITE QUICK DRY TRAFFIC MARKING PAINT IN ACCORDANCE WITH CITY OF KNOXVILLE TECHNICAL SPECIFICATIONS SECTION 39.0 - PAVEMENT MARKINGS AND TEMPORARY PAINT; AND TDOT STANDARD SPECIFICATIONS SECTION 910.
- PERPENDICULAR CURB RAMP SHALL BE IN ACCORDANCE WITH TDOT STANDARD DETAIL RP-H-4.
- PARALLEL CURB RAMP SHALL BE IN ACCORDANCE WITH TDOT STANDARD DETAIL RP-H-5.

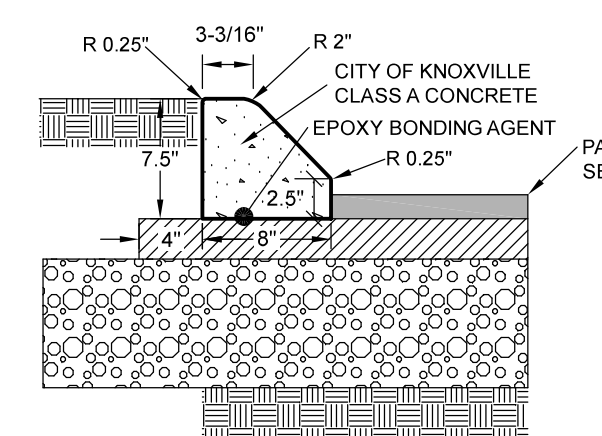


TYPICAL PARKING SPACE LAYOUT

NOT TO SCALE

GENERAL NOTES

- CURB CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF KNOXVILLE TECHNICAL SPECIFICATION SECTION 12.0 - CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER; AND TDOT STANDARD SPECIFICATIONS SECTION 702 - CEMENT CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER.
- EPOXY BONDING AGENT SHALL BE IN ACCORDANCE WITH ASTM C881, TYPE II.

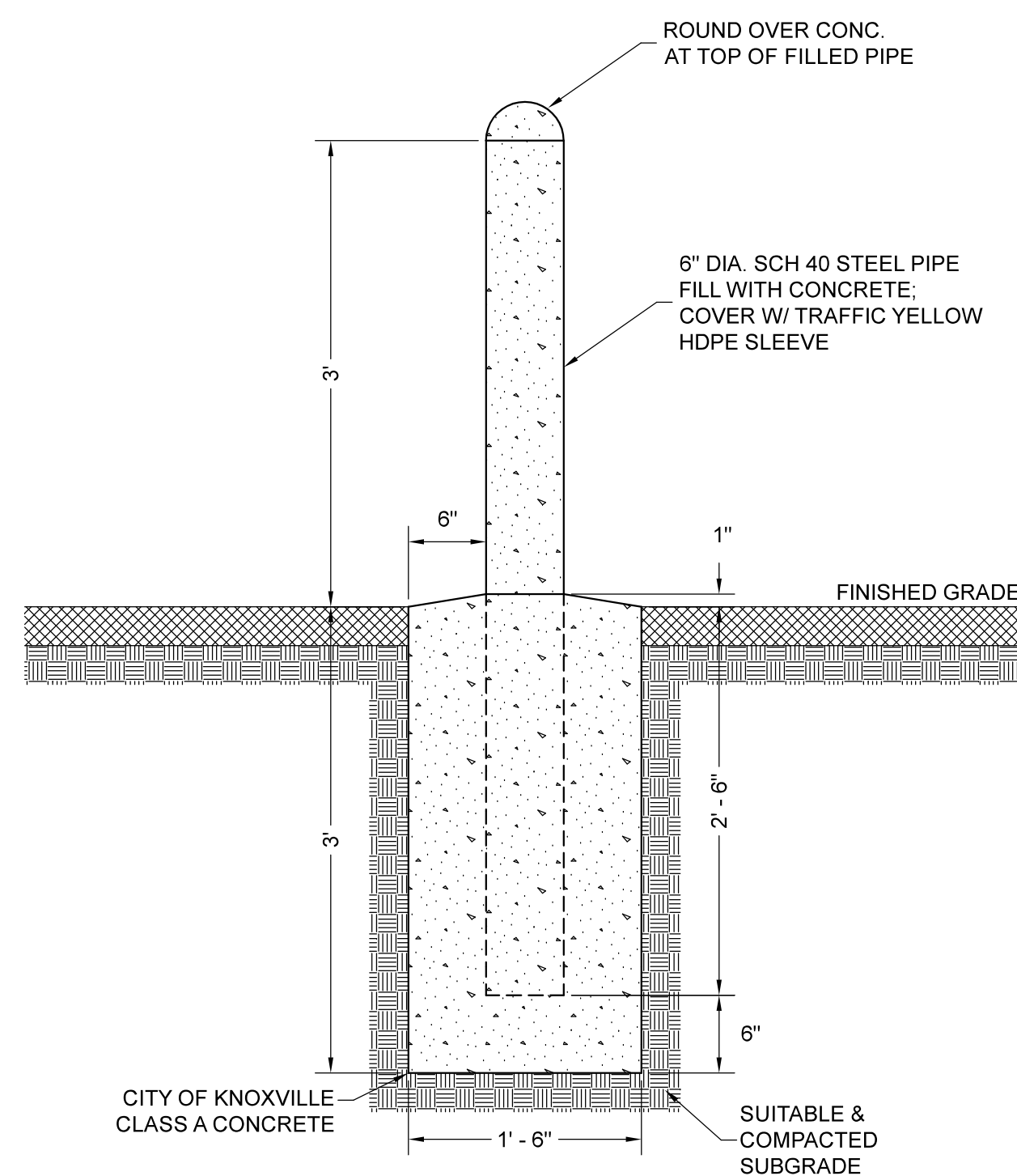


EXTRUDED CONCRETE CURB

NOT TO SCALE

GENERAL NOTES

- BOLLARD CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF KNOXVILLE TECHNICAL SPECIFICATIONS SECTION 50.0 - BOLLARDS.

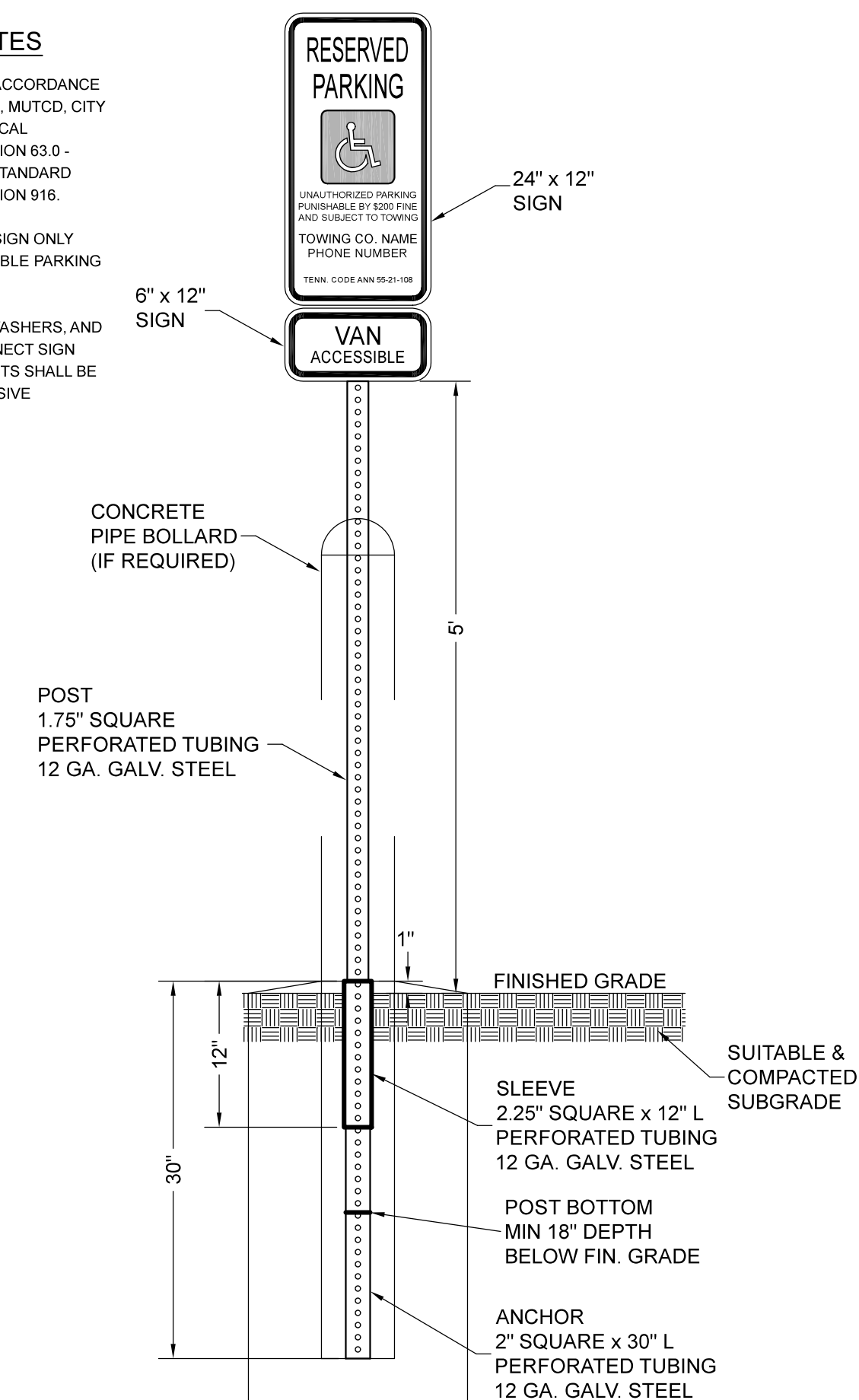


CONCRETE PIPE BOLLARD

NOT TO SCALE

GENERAL NOTES

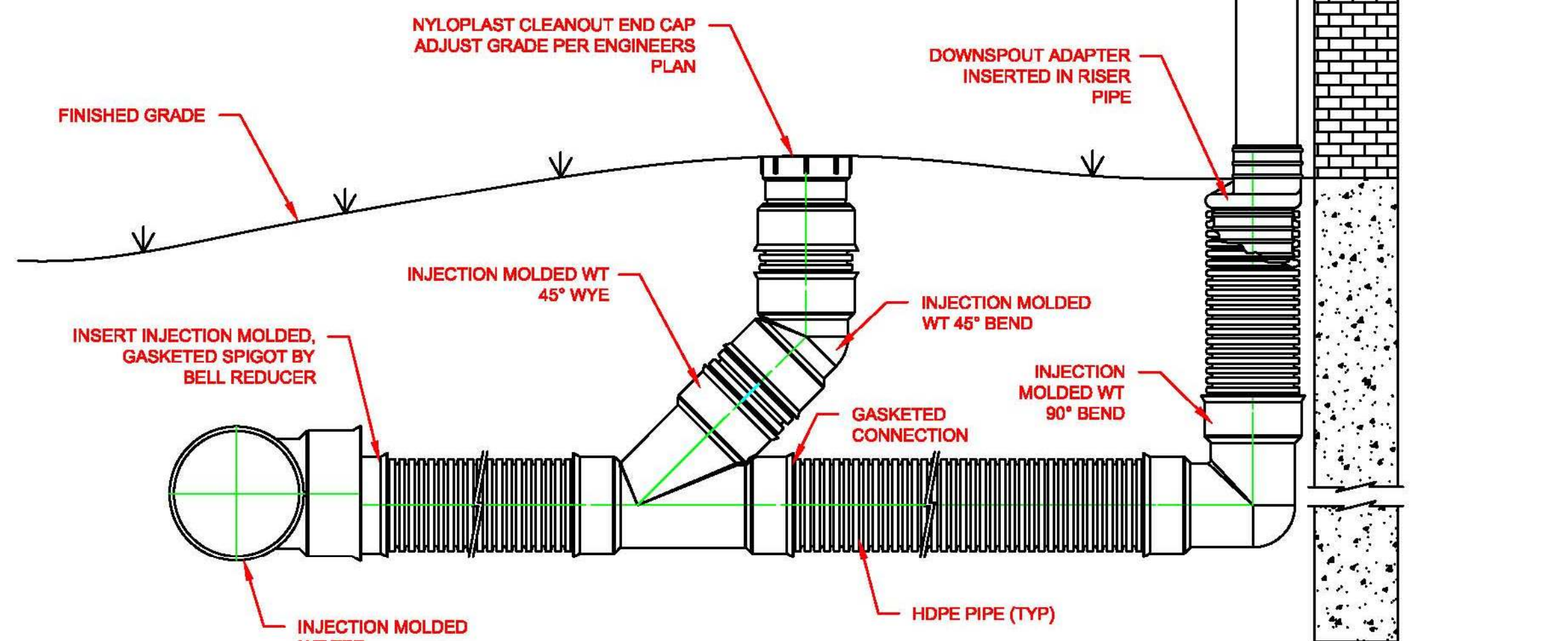
- SIGNS SHALL BE IN ACCORDANCE WITH ADA GUIDELINES, MUTCD, CITY OF KNOXVILLE TECHNICAL SPECIFICATIONS SECTION 63.0 - SIGNAGE, AND TDOT STANDARD SPECIFICATIONS SECTION 916.
- "VAN ACCESSIBLE" SIGN ONLY REQUIRED AT APPLICABLE PARKING SPACES.
- ALL BOLTS, NUTS, WASHERS, AND RIVETS USED TO CONNECT SIGN AND POST COMPONENTS SHALL BE MADE OF NON-CORROSIVE MATERIALS.



HANDICAP PARKING SIGN

NOT TO SCALE

NOTE: INJECTION MOLDED FITTINGS ARE AVAILABLE IN TEES, WYES, REDUCERS, 45° BENDS AND BELL/BELL COUPLERS. WATERTIGHT (WT) JOINTS SHOWN. SOIL-TIGHT (ST) FITTINGS ARE ALSO AVAILABLE.



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ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

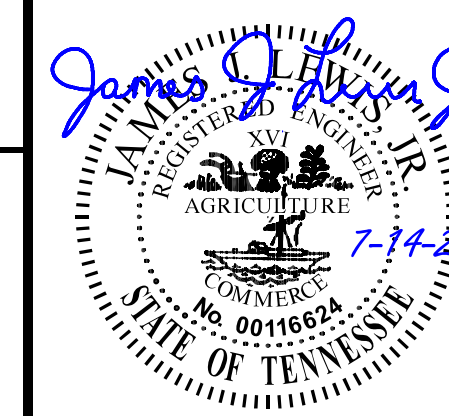
1	UPDATED DRAWING	TJR	01/11/07	CKS
REV.	DESCRIPTION	BY	MMDDYY	CHKD

ROOF DRAIN W/45 DEG WYE CLEANOUT		4840 TRUJMAN BLVD HILLIARD, OHIO 43026
DRAWING NUMBER:	STD-1001	ADVANCED DRAINAGE SYSTEMS, INC.
DATE:	04.02.03	NTS
SHEET:	1 OF 1	

ROOF DRAIN WITH CLEANOUT

MARYVILLE RETAIL SITE
1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
PARCEL ID: MAP 57 PARCEL 9.06
CITY OF MARYVILLE
9th CIVIL DISTRICT
BLOUNT COUNTY, TENNESSEE

Engineer/Surveyor
LAND TECH
CIVIL ENGINEERING & LAND SURVEYING
100 McCaughey Road, Knoxville, TN 37918
865.978.6510 www.landtechco.com



No.	Date	Revision	Comments
1	10/23/20		REVISION COMMENTS FROM CITY, TDEC AND TDOT

Drawn By: MBB
Checked By: JLL
Approved By: JLL
LT Project No.: 2004019
LT Drawing No.: D(O)263-R1
Date: 07/14/20

Sheet Title: **Details**

Sheet ID: **C-407**

Sheet No. 19

103.3 DRAINAGE STRUCTURES

DRAINAGE STRUCTURES INCLUDE CATCHBASINS, MANHOLES, JUNCTION BOXES, AND CULVERTS.

1. ALL INVERTS ARE REQUIRED TO BE U-SHAPED.
2. THE ACCESS ENTRANCE SHALL BE AT LEAST 24" IN DIAMETER.
3. APPROVED CATCHBASIN GRATES IN THE CITY OF MARYVILLE ARE:

STANDARD CURB AND GUTTER	NEENAH R-3246-AL EJUV 00751004
MARYVILLE MODIFIED CURB & GUTTER	NEENAH R-3246-AM WITH R-3000-A ENVIRONMENTAL MESSAGE)
ROLL TYPE CURB & GUTTER	NEENAH R-3580
NO CURB OPENING	NEENAH R-3210-L
AREA DRAIN	NEENAH R-3807

APPROVED EQUIVALENTS WILL ALSO BE ALLOWED. ALL CATCHBASINS MUST BE STAMPED "DUMP NO WASTE, DRAINS TO STREAM" OR APPROVED EQUIVALENT.

106 PRODUCTS

Pipe and all accessory fitting and appurtenances, etc., shall be made in America where possible unless approval is obtained from the EPW Department for the use of a product that is not made in America. This requirement shall be construed in a manner that does not violate the North American Free Trade Agreement, any amendments thereto, or any other free trade or other laws.

106.1 Pipe Materials Approved storm pipe is as follows:

1. Reinforced Concrete Pipe (RCP):
 - a. ASTM C76/AASHTO M86M
 - b. ASTM C508/AASHTO M206M
 - c. ASTM C507/AASHTO M207M.
2. Spiral Rib Metal Pipe (SRMP):
 - a. ASTM A760/AASHTO M36.
3. Compugated Steel Pipe (CMP):
 - a. ASTM A760/AASHTO M36.
4. Thermoplastic Pipe (HDPE, PVC):
 - a. High Density Polyethylene (HDPE): ASTM F2306/AASHTO M252 Type S and M294 Type S.
 - b. Polyvinyl Chloride (PVC): ASTM F949.

Acceptable pipe material selection shall adhere to the following table:

TABLE "A"		FILL HEIGHT			
UP TO 10"	OVER 10" UP TO 16"	OVER 16" UP TO 27"	OVER 27" UP TO 41"	>41"	
EXPRESSWAYS, MAJOR AND MINOR ARTERIAL, MAJOR AND MINOR COLLECTOR					
CROSS DRAINS	RCP CL III	RCP CL III	RCP CL IV	RCP CL V	NOTE 3
TRANSVERSE MEDIAN DRAINS	RCP CL III	RCP CL III	RCP CL IV	RCP CL V	NOTE 3
LONGITUDINAL STORM DRAINS	RCP CL III	RCP CL III	RCP CL IV	RCP CL V	NOTE 3
RESIDENTIAL SUB-COLLECTORS, LOCAL STREET, MINOR STREET					
CROSS DRAINS	RCP CL III HPDE NOTE 1 PVC NOTE 1	RCP CL III HPDE NOTE 1 PVC NOTE 1	RCP CL IV	RCP CL V	NOTE 3
TRANSVERSE MEDIAN DRAINS	RCP CL III HPDE NOTE 1 PVC NOTE 1	RCP CL III HPDE NOTE 1 PVC NOTE 1	RCP CL IV	RCP CL V	NOTE 3
LONGITUDINAL STORM DRAINS	RCP CL III HPDE NOTE 1 PVC NOTE 1	RCP CL III HPDE NOTE 1 PVC NOTE 1	RCP CL IV	RCP CL V	NOTE 3
RESIDENTIAL AREAS IN DRAINAGE EASEMENTS					
CROSS DRAINS	RCP CL III HPDE NOTE 1 PVC NOTE 1 ALUMINIZED SRMP NOTE 2	RCP CL III HPDE NOTE 1 PVC NOTE 1 ALUMINIZED SRMP NOTE 2	RCP CL IV	RCP CL V	NOTE 3
OFFSITE DRAINAGE CONVEYANCE					
CROSS DRAINS	RCP CL III HPDE NOTE 1 PVC NOTE 1	RCP CL III HPDE NOTE 1 PVC NOTE 1	RCP CL IV	RCP CL V	NOTE 3

- Note 1: Where also conditions permit and at the discretion of the design engineer.
 Note 2: Spiral rib metal pipe. Minimum gauge as follows: 15 to 30 inch 16 gauge, 36 to 42 inch 14 gauge, 48 to 72 inch 12 gauge. CMP shall not be substituted for SRMP. Bands for pipe ends shall use rubber o-ring seals.
 Note 3: Structural, hydraulic, and cost analysis required for pipes with a fill height of over 41 feet.

106.2 Pipe Fittings

- a) Pipe shall be fitted together per pipe manufacturer's recommendation.
- b) A structure shall be installed when connecting dissimilar pipe materials or sizes.

106.3 Concrete Materials

Concrete used in conjunction with the installation or repair of storm drain lines and appurtenances shall be as follows:

1. Minimum compressive strength: 28 days, 4,000 psi average any 3 cylinders.
2. Coarse aggregate: Size No. 57 crushed limestone.
3. Fine aggregate: Natural sand or manufactured limestone sand proportioned by dry weight of fine to total aggregates between 30-45 percent.
4. Slump: 2-4 inches.
5. Mixing Water: Maximum 6.0 gallons per sack of cement. Deduct the moisture content of the aggregate from the amount of mixing water required.
6. Cement: Use Portland cement meeting the requirements of ASTM Standard C150. Use minimum 6.6 sacks of cement per cubic yard of concrete.
7. Dry aggregate per cement sack: Coarse aggregate-280, fine aggregate using manufactured limestone sand-194, fine aggregate using natural sand-187.

106.4 Drainage Structures

Drainage structures include catchbasins, manholes, junction boxes, and culverts.

- a) General Requirements All structures shall be precast reinforced concrete meeting the requirements of ASTM Standard C478 except as provided otherwise in the following:
 1. Inside diameter shall be based on required pipe diameter. Structures used within the public right of way and in residential applications within drainage easements should be sized on the following criteria:

1. Inside diameter shall be based on required pipe diameter. Structures used within the public right of way and in residential applications within drainage easements should be sized on the following criteria:

MINIMUM DIMENSIONS FOR STRUCTURES					
PIPE SIZE	RECTANGULAR: PIPE SIDE DIMENSION	ROUND: INSIDE DIAMETER	PIPE SIZE	RECTANGULAR: PIPE SIDE DIMENSION	ROUND: INSIDE DIAMETER
15 TO 30 INCHES	AT LEAST 6 IN LARGER THAN OD OF PIPE BUT NOT LESS THAN 24 IN	4 FT	60 INCHES	7 FT	8 FT
36 INCHES	4 FT	5 FT	66 INCHES	7 FT	8 FT
42 INCHES	5 FT	6 FT	72 INCHES	8 FT	8 FT
48 INCHES	6 FT	6 FT	78 INCHES	9 FT	10 FT
54 INCHES	6 FT	8 FT			

2. Wall thickness shall be a minimum of 5 inches.
3. The minimum compressive strength of precast risers, bases, cone or top sections, and grade rings shall be 4,000 psi.
4. The access opening in cone or top sections shall be a minimum of 24 inches.
5. Joints: The reinforced concrete base and riser sections, excepting grade rings, shall be formed with male and female ends, so that when the base, riser, and top are assembled they will make a continuous and uniform structure.
6. Lift eyes or holes may be provided in each section for the purpose of handling but must not protrude through the concrete walls.
7. Poured-in-place reinforced concrete structures or polyethylene structures may be used with prior permission of the City.

2. Wall thickness shall be a minimum of 5 inches.
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5. Joints: The reinforced concrete base and riser sections, excepting grade rings, shall be formed with male and female ends, so that when the base, riser, and top are assembled they will make a continuous and uniform structure.
6. Lift eyes or holes may be provided in each section for the purpose of handling but must not protrude through the concrete walls.
7. Poured-in-place reinforced concrete structures or polyethylene structures may be used with prior permission of the City.

- b) Precast Reinforced Concrete Bases:
 1. The base riser sections shall be precast with integral floors.
 2. Heights of bases for pipes shall be according to the manufacturer's specifications, subject to prior approval of the City.
- c) Precast Reinforced Concrete Tops shall be of the following two types:
 1. Eccentric Cone
 2. Flat Slab Top

- d) Precast Reinforced Concrete Grade Rings:
 1. Grade ring wall thickness shall be a minimum of 5 inches.
 2. Grade rings shall match the structure being used and be either 2 inches, 4 inches or 6 inches in height.
 3. The combined height of grade rings shall be a maximum of 12 inches.

- e) Steps:
 1. Steps shall be fabricated from aluminum alloy 6061, T6.
 2. Steps shall be corrosion resistant, free from sharp edges, burrs, or other projections which may be a safety hazard and shall be of sufficient strength to have a live load of 300 pounds imposed at any point.
 3. The minimum width of cleat shall be 10 inches.
 4. The legs and studs shall be of sufficient length for the cleat to project a minimum clear distance of 4 inches from the wall when the step is securely imbedded in the structure wall.
 5. The top surface of the cleats shall be designed to prevent foot slippage.
 6. Steps shall be positioned vertically and at a maximum spacing of 16 inches.
 7. Steps shall be the same size, projection, spacing, and alignment in each structure.
- f) Openings in the base section wall shall be factory installed for the required number and size of pipes.

- g) Pipe Entrance Requirements:
 1. Pipe openings made in the field in existing structure walls for pipe installation shall be one of the following:
 - i) Concrete structures shall be cored in the field. All pipe shall be grouted both inside and outside to the structure.
 - ii) Existing brick structures shall be evaluated in the field for replacement with a precast concrete structure. Whenever new lines are installed in existing brick structure, it shall be replaced unless approval is obtained from EPW to leave the existing structure in place. If a connection is made it shall be cored and new pipe grouted both inside and outside to the structure.
 2. Other specially designed products may be approved by the Maryville EPW Department.

- h) Covers:
 1. Frames and covers shall be of gray cast iron meeting the latest requirements of ASTM Standard A48, Class 30, (30,000 psi). The total weight of the frame and cover shall not be less than 375 pounds.
 2. Covers shall be round and machine ground horizontally.
 3. Frames shall have clear coverings of 24 inches, height between 7.8 & 8 inches, and overall base diameters between 35 & 37 1/2 inches. The base shall have four uniformly spaced holes for attachment to the structure using 5/8-inch diameter bolts. The maximum bolt circle diameter shall be 33 inches.
 4. Covers shall have a thickness as specified by manufacturer and diameters of 26 inches.
 5. Covers shall have two non-penetrating pick holes for lifting purposes.
 6. The top face of the covers shall be embossed with the words "STORM SEWER" with letters approximately two (2") inches in size.

107.2 Installing Storm Drainage Pipe

All storm drain pipe systems installed in the City of Maryville shall conform to the standards listed below.

- a) Trench excavation details and dimensions shall be as specified by the design engineer on the approved site plan. Minimum trench width should provide clearance on each side of the pipe between the outside diameter of the pipe and the trench wall equal to 1/2 the nominal pipe diameter, but not to exceed 18 inches.

Minimum Trench Width - Inches

Diameter	Good Soil	Poor Soil
15	32	48
18	37	56
24	48	64
30	56	72
36	64	82
42	72	96
48	80	106
54	89	116
60	98	116

- b) If the trench walls or bottom are found to be unstable the contractor shall consult with the design engineer for an alternative trench design.
- c) Lay pipe true to the lines and grades from the grade and alignment stakes, or equally usable references.
- d) Laser equipment shall be provided at intervals of 100 feet and at every drainage structure location for the purpose of checking grade between sections.
- e) Accurately establish the centerline of each pipe using a transit.
- f) Carefully inspect all pipe and each fitting prior to its placement in the trench, and reject any defective pipe or fitting from the job site.
- g) Lay pipe progressively upgrade on a minimum 6 inch bedding of Class I or II material (ASTM D2321), with bell upstream in such a manner as to form close, concentric joints with smooth bottomed inverts. Joining of all pipe shall be in accordance with manufacturer's specifications. Metal pipe bands shall have rubber o-ring gaskets.
- h) Backfill pipe using clean Class I or II material (ASTM D2321) using the following criteria:

PIPE MATERIAL	BACKFILL DEPTH
THERMOPLASTIC METAL	6 IN ABOVE TOP OF PIPE
CONCRETE	TO SPRING LINE OF PIPE
ALL	TO THE ROAD SUB-GRADE

- i) Keep the pipe free of all unneeded material, and upon completion of a section between any two drainage structures, it shall be possible to view a complete circle of light when looking through the pipe.
- j) When laying pipe ceases, close the open ends of the pipe with a suitable plug to prevent the infiltration of foreign materials.
- k) A structure shall be used when joining dissimilar pipe.
- l) Headwalls and endwalls shall be used at open pipe inlets and outlets.
- m) Outlet protection shall be provided in the form of either riprap aprons, level spreaders, outlet basins, or baffled outlets based on the potential for erosion or scour caused by concentrated flow from the outlet pipe. Riprap aprons shall have a geotextile underlayment.

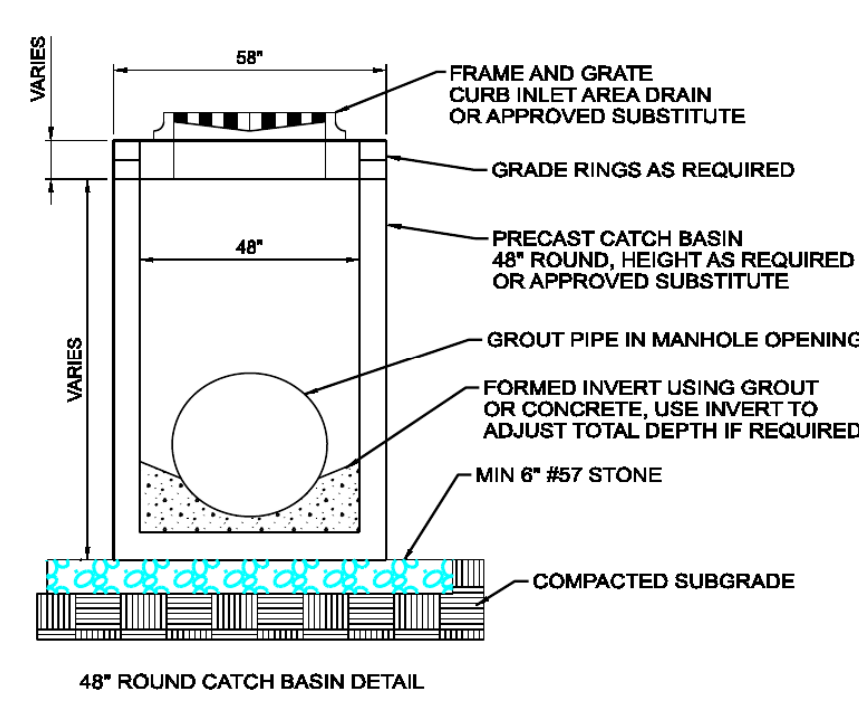
107.3 INSTALLING DRAINAGE STRUCTURES

All storm drain structures installed in the City of Maryville shall conform to the standards listed below.

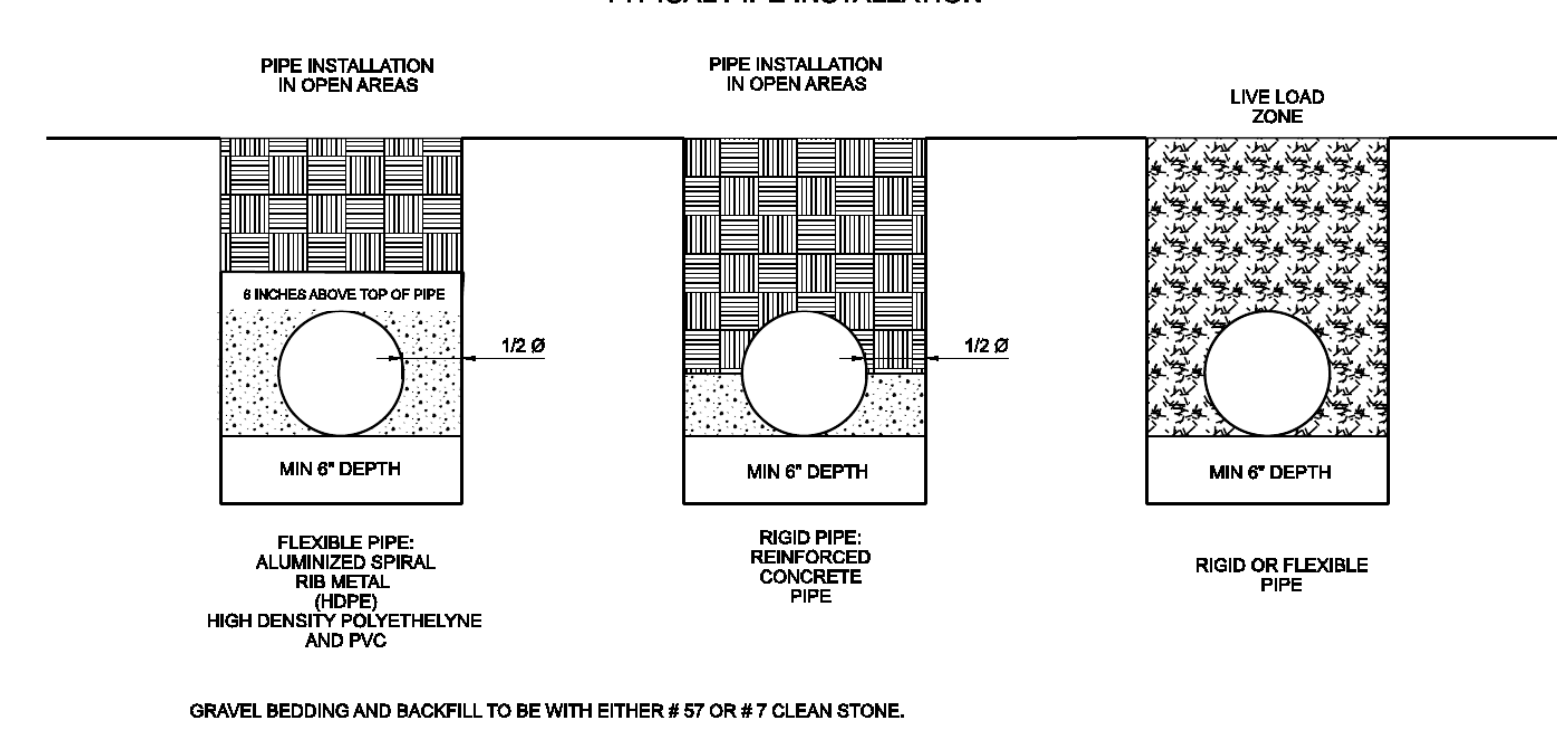
- a) Structures shall be furnished as provided under Section 106.4 of these Standards
- b) Depth of structures shall be the vertical distance from the lowest invert in the structure to the base of the cover frame.
- c) Backfill with the same material used for pipelines
- d) Prepare subgrade on undisturbed earth. Remove all loose earth prior to placing crushed stone base or concrete slab. Fill all disturbed areas below subgrade level with compacted bedding stone.
- e) Structures having a depth of less than 12 feet shall be set on compacted Class I or II (ASTM D2321) bedding material at a minimum of 1/3 the diameter of the pipes being accommodated.
- f) Structures having a depth of 12 feet or more shall be set on a 6 inch thick concrete slab having minimum diameter 1 foot greater than the outside diameter of the base section. The concrete slab shall be poured on a minimum 6-inch thick compacted crushed stone bedding. Concrete shall meet the condition of Section 106.3 of these Standards.
- g) The base shall be placed on dry consolidated and, when possible, undisturbed soil.
- h) Structures shall be set plumb.
- i) Inverts shall be accurately shaped using concrete to a smooth surface texture. Invert flow channels shall be shaped having the same radii as those of the pipes for which the channels are being provided. The depth of the channels shall be a minimum of 1/3 the diameter of the pipes being accommodated.
- j) Inlets and outlets shall be finished smooth and flush with the sides of the structure wall so as not to obstruct the flow of stormwater.
- k) When completed, the structure shall be free from channel obstruction and leakage.
- l) Lift holes shall not completely penetrate the structure walls.
- m) Precast concrete grade rings shall be set using Portland Cement Mortar and/or flexible buy'd resin sealant. Care should be exercised so as not to allow too much water in the Portland Cement Mortar, which may cause shrinkage. All cover frames that are attached to 2 or 4 inch grade rings shall be attached to the grade rings using Portland Cement Concrete mortar and/or buy'd resin sealant. A minimum of 2-inch thickness of mortar shall also be placed over joints of the cover frame as shown on Standard drawings. Joints of precast concrete grade rings and frames shall be made so as to prevent leakage. Alternate attachment for 6-in height grade rings and direct attachment to the cone. The following alternate may be used in lieu of Portland cement mortar for attaching frames to grade rings 6 inches in height directly to the cone. Frames shall be bolted by means of 4.5/8-inch anchor bolts and shall be set in a bed of flexible buy'd resin sealant. No Portland Cement Mortar will be required around the frame when this alternative is used.

107.5 Initial Inspection of Storm Systems

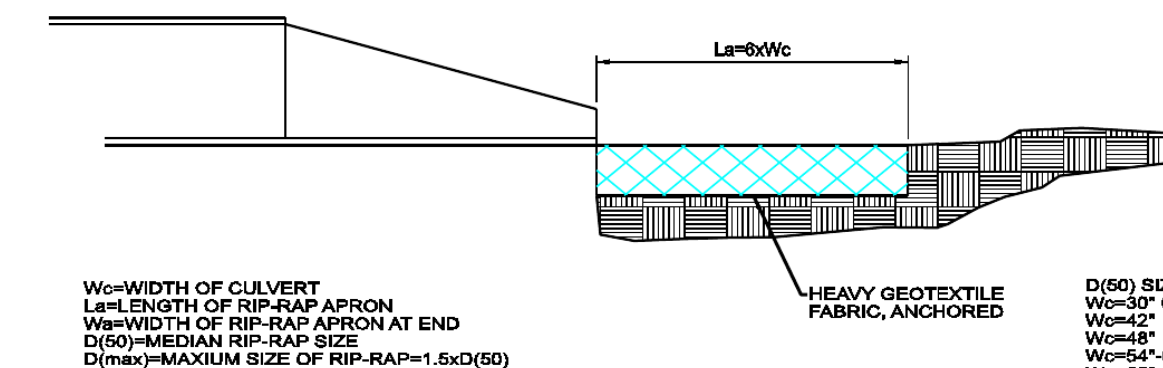
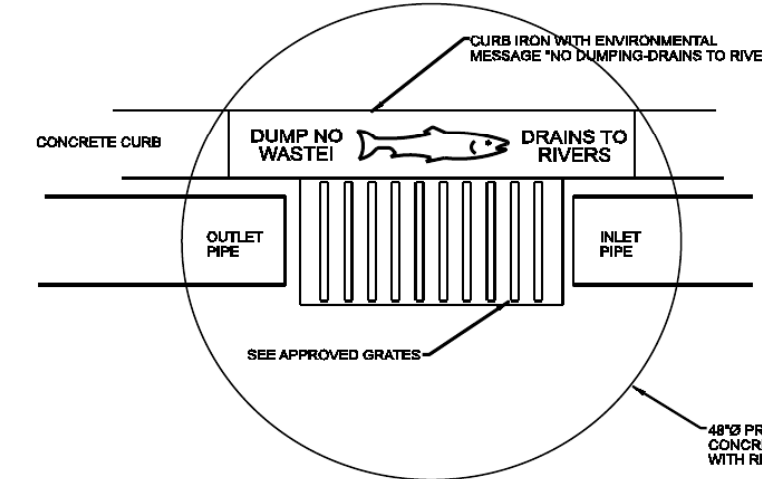
The City of Maryville is required by its NPDES Phase II Permit to accept responsibility of all stormwater runoff discharging into the waters of the state. In an effort to prevent premature system failures, which can lead to illicit discharges, the City reserves the right to inspect any storm drain installations, in order to establish confidence in the installation and avoid the unnecessary delay of final acceptance. All stormwater installations shall be inspected by the Director of Public Works or his/her designee. Any defects shall be corrected. The contractor shall be aware that any defective pipe or pipe joint will require the line to be dug up and repaired. Great care should be exercised to ensure a proper installation. Other utility installations should be closely supervised to ensure that the stormwater drainage system is not damaged during construction.



TYPICAL PIPE INSTALLATION



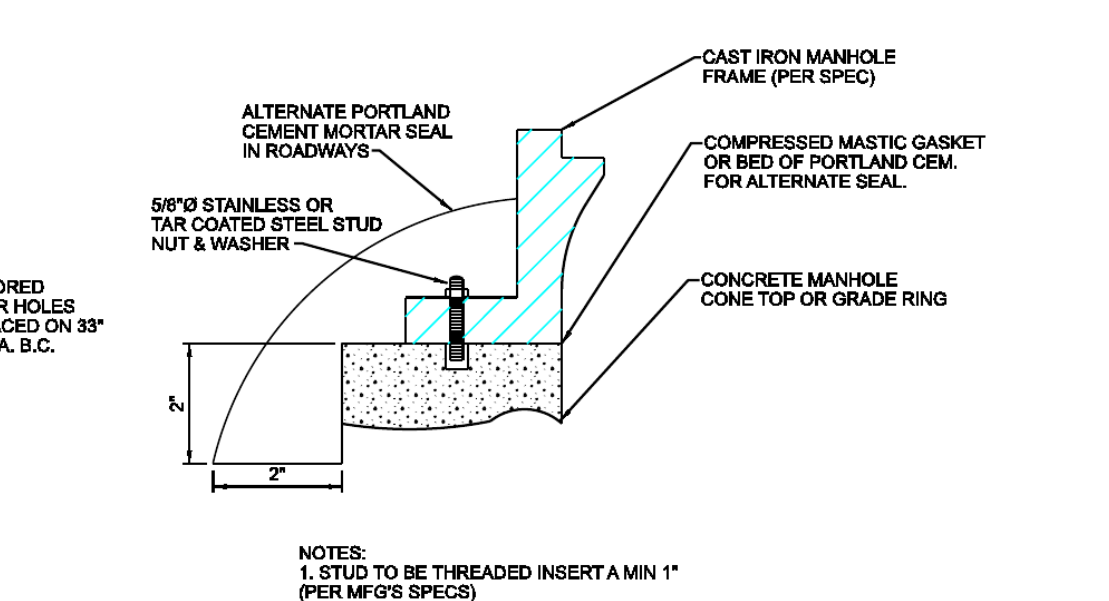
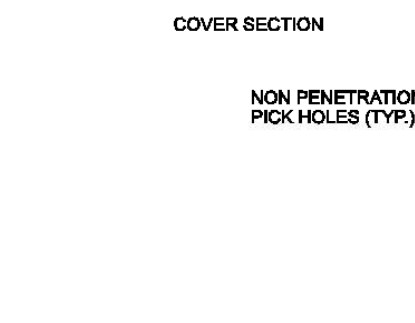
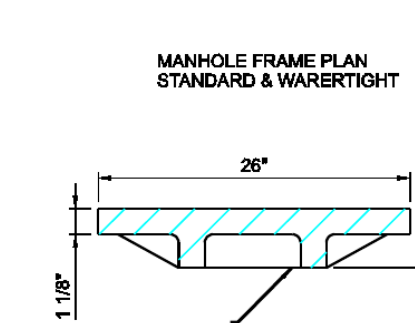
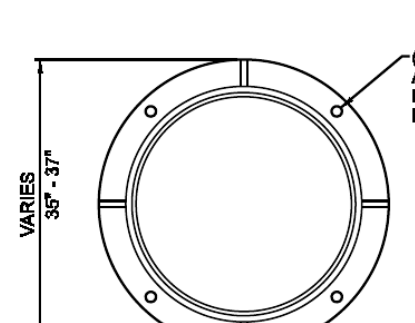
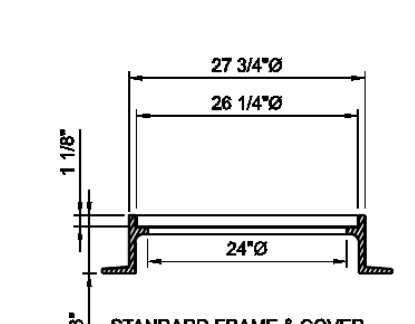
GRAVEL BEDDING AND BACKFILL TO BE WITH EITHER # 57 OR # 7 CLEAN STONE.



REFER TO THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK

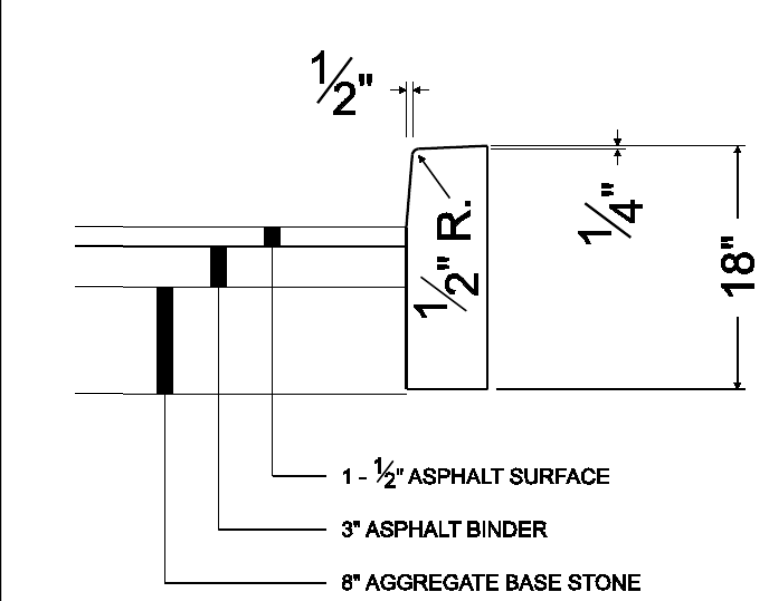
RIP-RAP OUTLET PROTECTION

N.T.S.



- NOTES:
 1. STUD TO BE THREADED INSERT A MIN 1" (PER MFG'S SPECS)
 2. STUD TO BE SUFFICIENT LENGTH FOR FULL ATTACHMENT OF ALL HARDWARE.

6" TYPE "A" DETACHED CURB



STORMWATER CONSTRUCTION DETAILS



CITY OF MARYVILLE
 ENGINEERING & PUBLIC WORKS
 STORMWATER DEPARTMENT
 416 W. BROADWAY AVE.
 PHONE: 865-273-3500
 FAX: 865-273-3525
 www.maryvillegov.com

MARYVILLE RETAIL SITE
 1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
 PARCEL ID: MAP 57 PARCEL 9.06
 CITY OF MARYVILLE
 9th CIVIL DISTRICT
 BLOUNT COUNTY, TENNESSEE

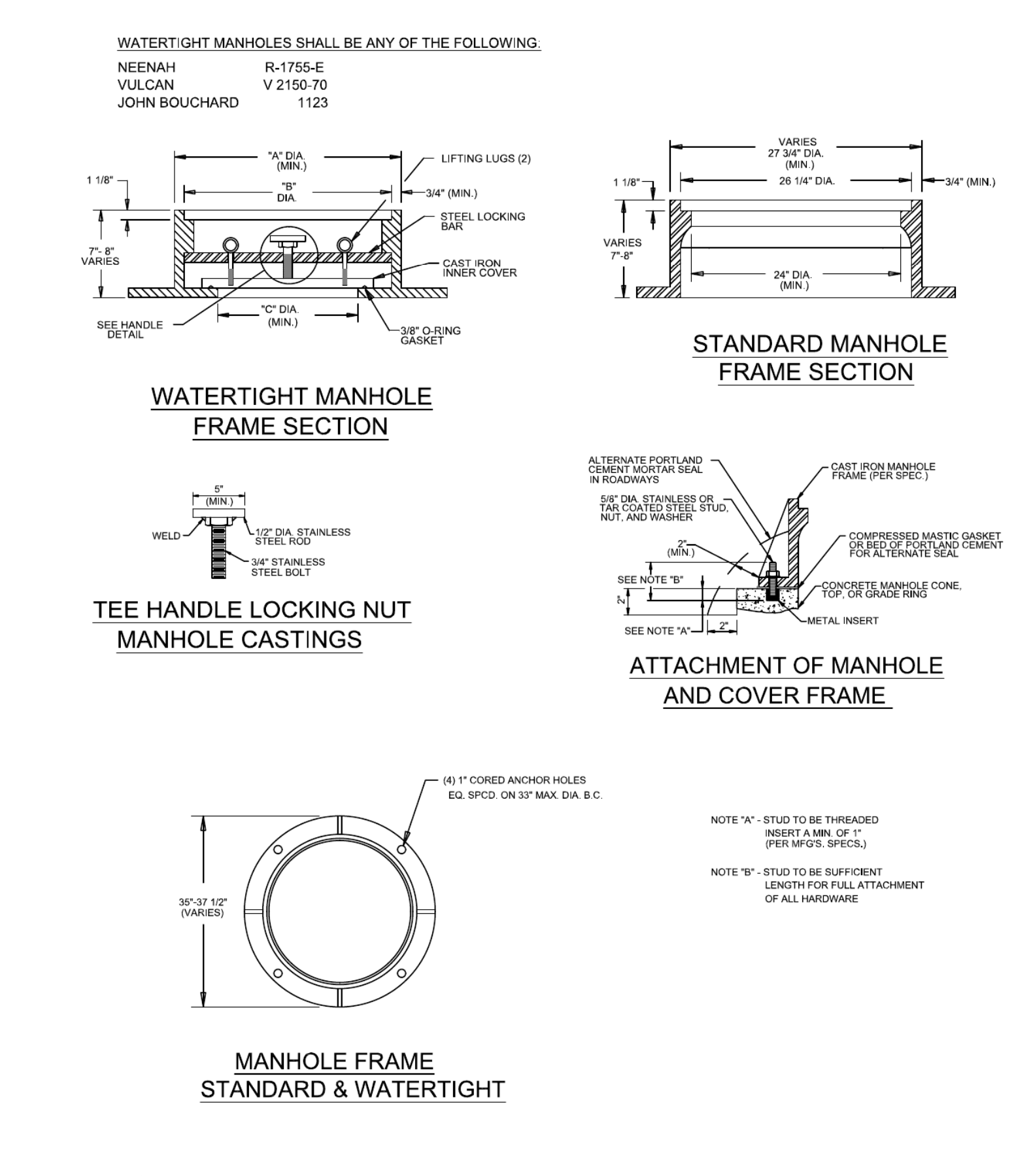
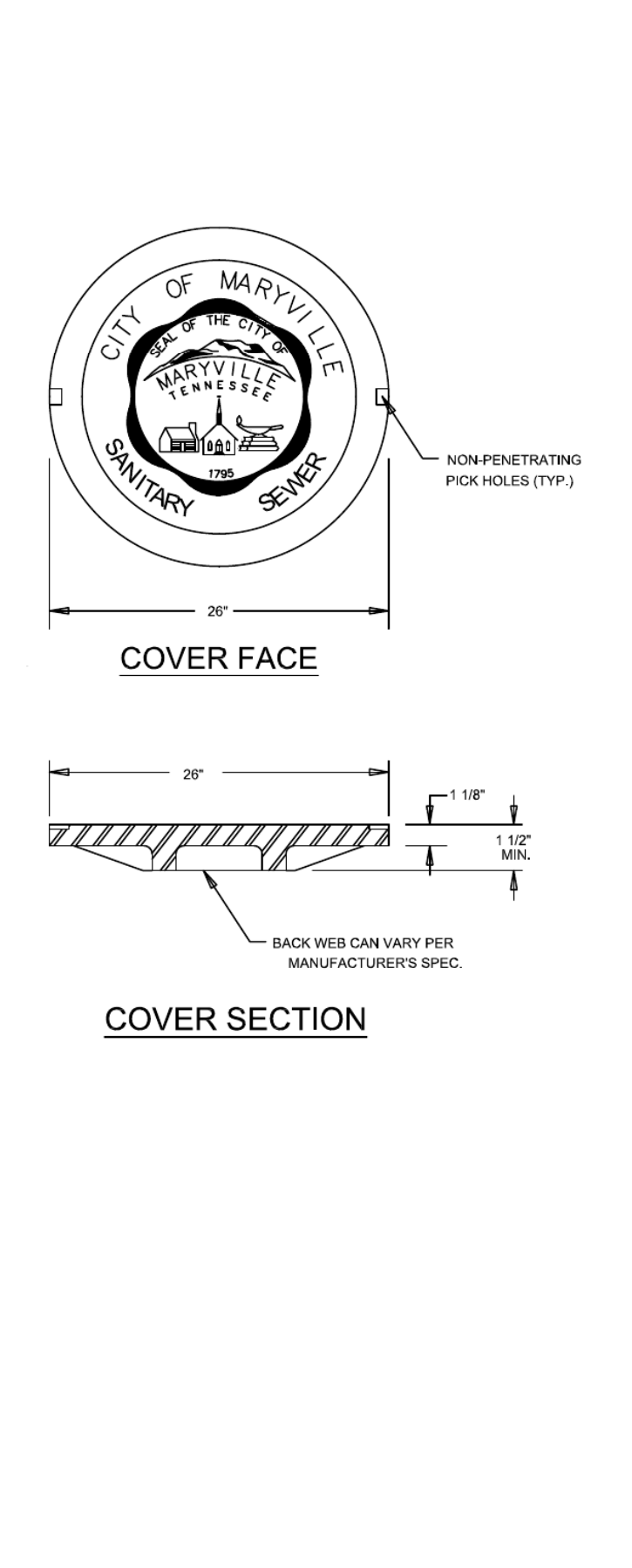
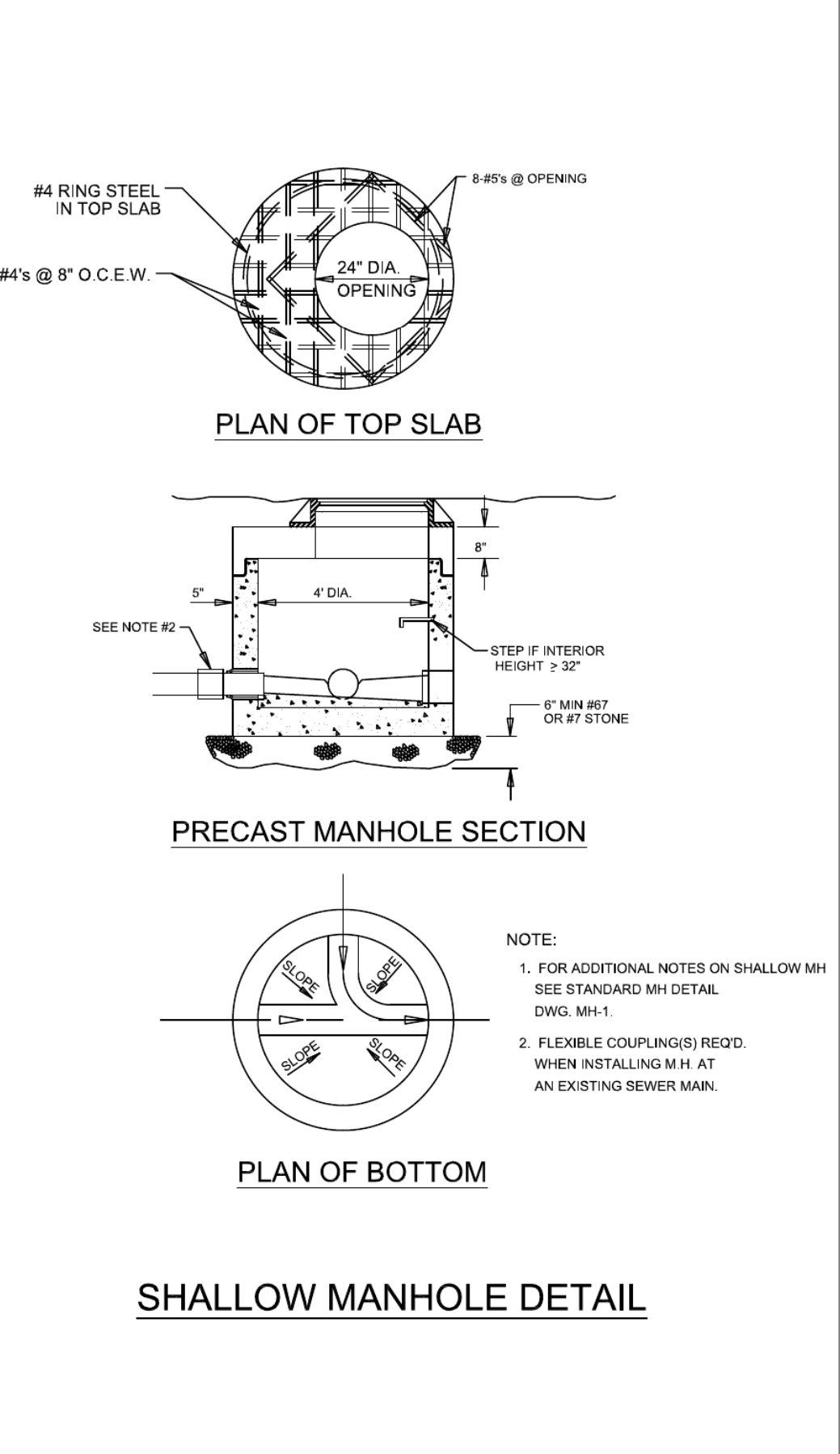
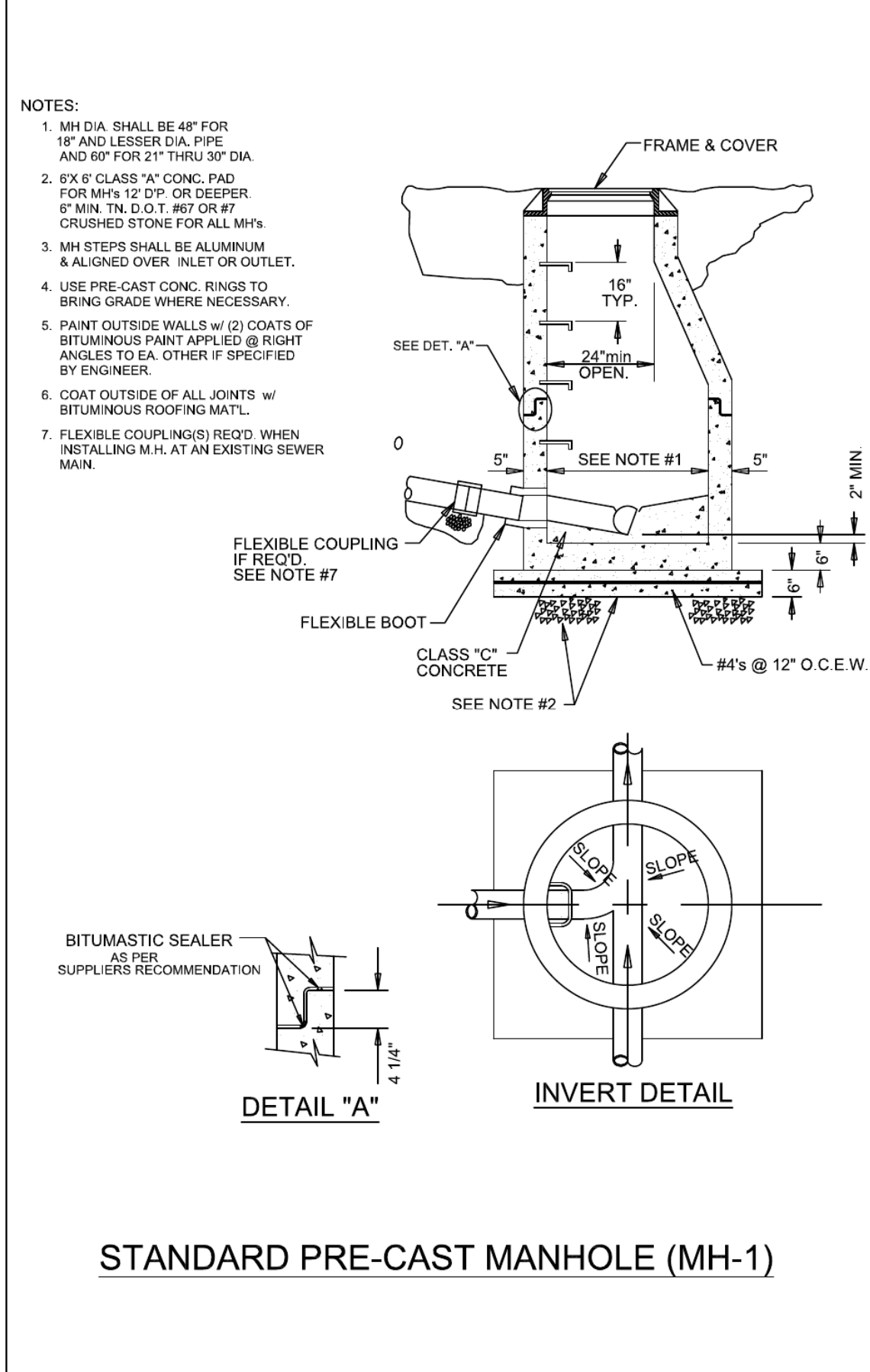
Engineer/Surveyor
LAND TECH
 CIVIL ENGINEERING & LAND SURVEYING
 100 McCampy Road, Knoxville, TN 37918
 865.978.6510 www.landtechco.com

Professional Engineer Seal for James J. Walker, State of Tennessee, No. 00116624, Expires 7-1-20.

No.	Date	Revision	REVISION COMMENTS FROM CITY, DEB AND TDDT
1	10/23/20		

Drawn By: MBB
 Checked By: JLL
 Approved By: JLL
 LT Project No.: 2004019
 LT Drawing No.: D(O)263-R1
 Horiz. Scale: Date: 07/14/20

Sheet Title
C-408
 Sheet No. 20



CITY OF MARYVILLE

GENERAL UTILITY NOTES:

All sewer and water extensions shall be built in accordance with the RULES, REGULATIONS, RATES, AND POLICIES of the City of Maryville, Water & Sewer Department, Maryville, Tennessee which are available from the City of Maryville (COM) at www.maryvillegov.com. In cases of conflict, the City of Maryville (COM) regulations shall rule. It shall be the developer and contractor responsibility to obtain and follow the regulations of the City of Maryville (COM). Easements shall exist as per the subdivision plat or recorded easements documents. If no necessary easements are not in place, the developer shall obtain and furnish the City of Maryville (COM) with easements for the portions or utility lines that cross private property. The easement documents shall be reviewed by the City of Maryville (COM) for acceptability prior to signature. An easement document shall be recorded prior to construction of the utility lines. All water and sewer lines shall be laid in undisturbed native soil whenever practical. At the junction of all undisturbed soil and fill sections of the pipe trench, the backfill material shall be divided by an impermeable section of fill (e.g. compacted clay) around the installed pipe to prevent piping of water through the pipe bedding. Utilities crossing under other utilities shall be back filled with compacted with No. 7 stone to the spring line of the upper utility to prevent settling of the utility. Any utility trench within the roadway has one shall be totally backfilled with compacted stone as per the City of Maryville (COM) requirements. WATER AND SEWER systems shall not be granted final approval by the City of Maryville (COM) until "AS BUILT" drawings have been completed and are acceptable to the City of Maryville (COM).

SANITARY SEWER SPECIAL NOTES:

SEWERS IN FILL: Sewer lines laid in fill shall be:

- C900
- Installed on piers

This requirement may be waived if the site is in place by WSD. If sufficient compaction has been achieved in the fill (95% AASHTO T 99 minimum).

MANHOLE DEPTHS: Shall be the contractor responsibility to bring the finish manhole top into conformance with the finish grade and/or ground surface.

MANHOLE INVERTS: When the deflection angle in the invert of a manhole exceeds 90° the City of Maryville (COM) requires that:

- The invert level be at least 2 inches higher than the outlet invert.
- The channel from the inlet to the outlet shall be formed so no flow enters the main flow stream counter to the main direction of the flow.

DEEP SEWER LINES: Where the existing cover depth is more than 16 feet over the proposed sewer line, the ground must be graded to less than 16 feet of cover over the proposed sewer line prior to sewer construction or the sewer line must be constructed of C900. In all cases where the final cover over the sewer line is greater than 16 feet, the sewer line shall be constructed of C900.

SHALLOW SEWER LINES: Where the existing cover depth is less than 2 1/2 feet in open areas or 4 feet in roadways, the utility line shall be C900. Where required by the City of Maryville (COM) concrete encasement shall be used. (1) is used to meet minimum cover requirements, the 10 must be in place prior to utility line installation.

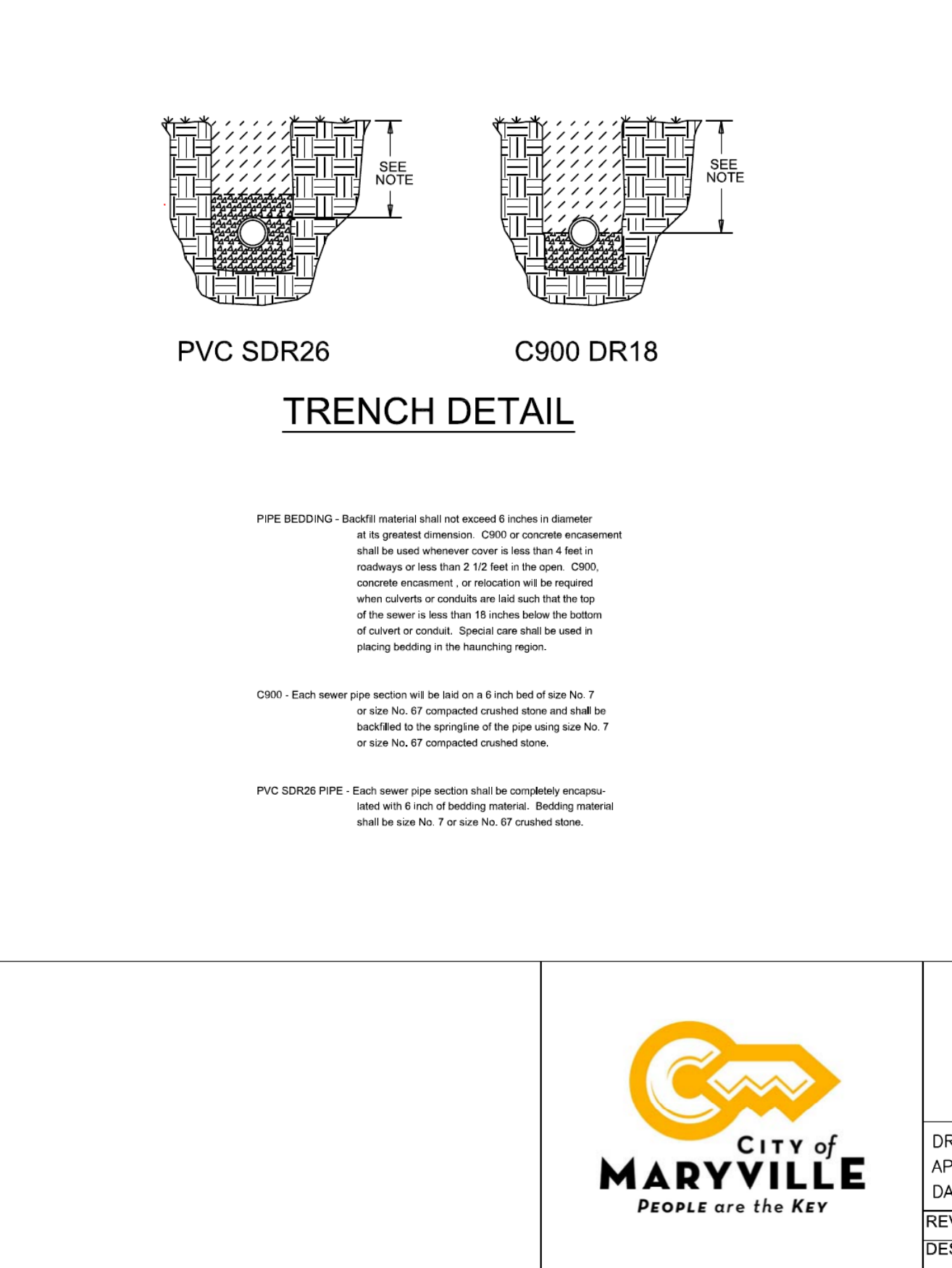
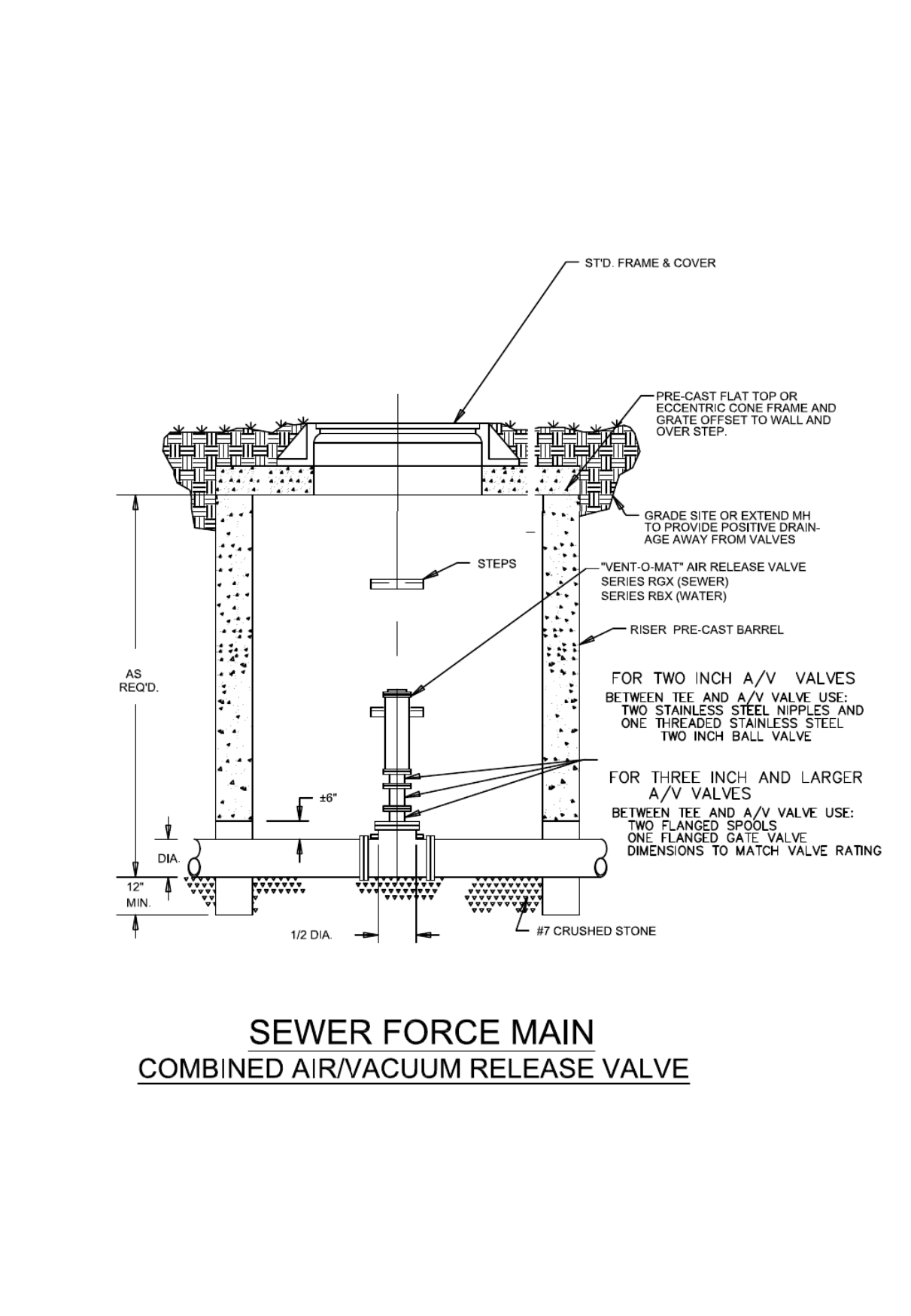
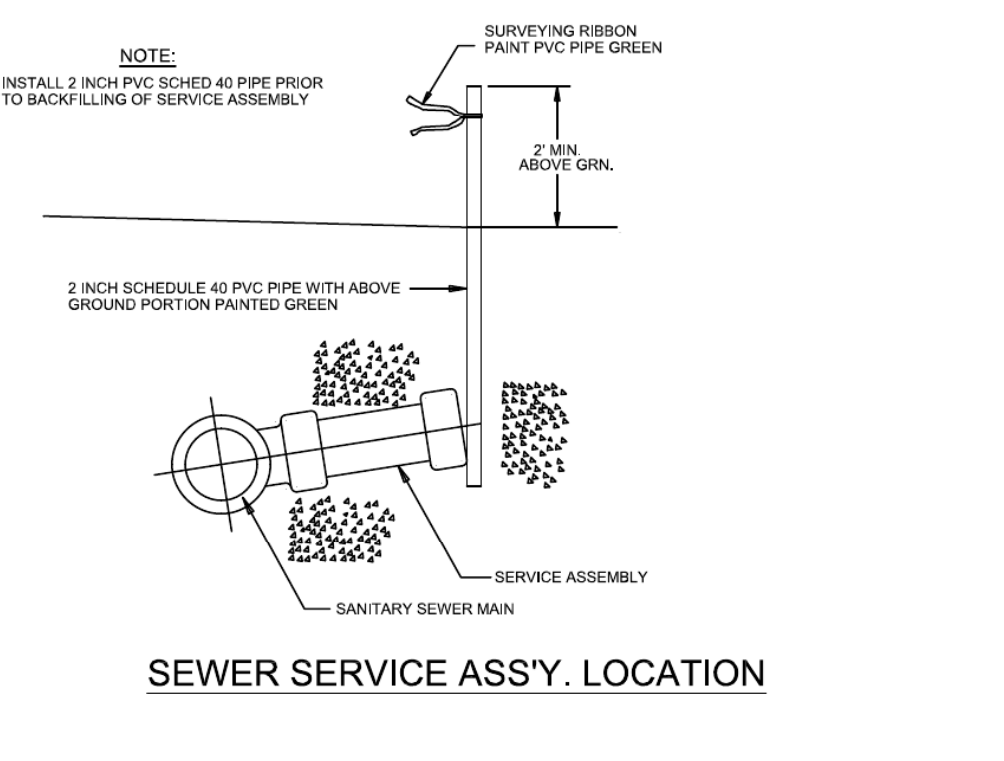
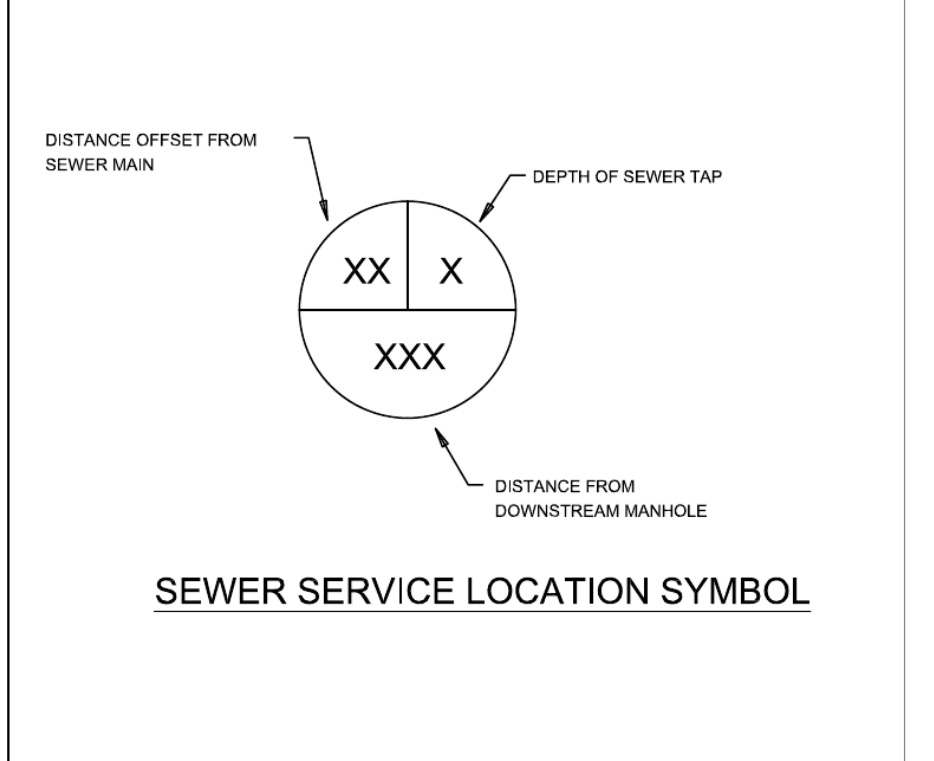
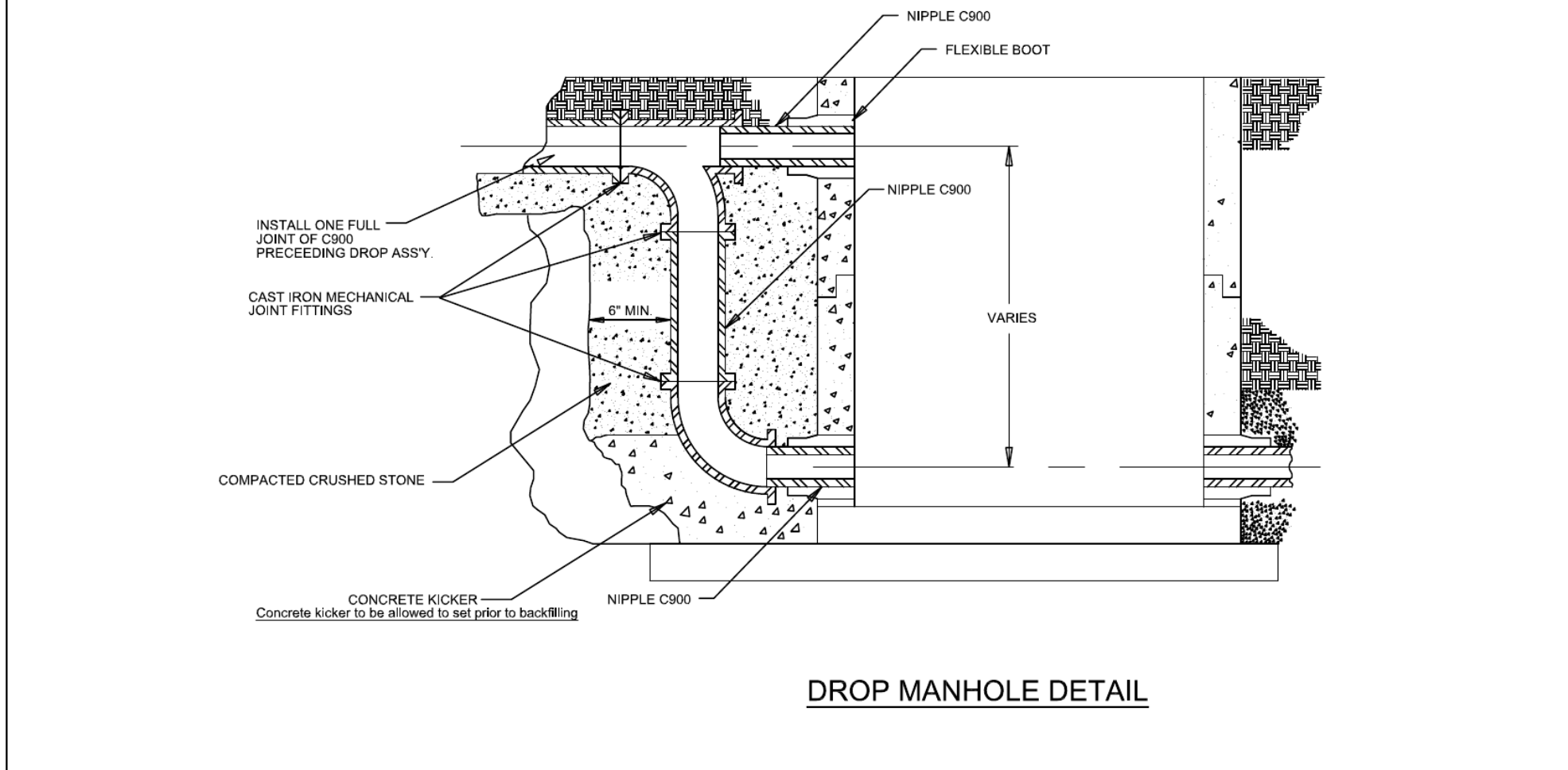
VACUUM TESTING: All Manholes will be vacuum tested as per the City of Maryville (COM) as per the City of Maryville and State of Tennessee requirements prior to acceptance.

CHECK DAMS: Check dams shall be installed in the bedding and backfill at all junctions of fit and native soil, and upstream of each manhole to limit the french drain effect of the gravel bedding. The maximum spacing between check dams shall be 500 feet. Check dams shall consist of concrete and backfill at least three feet thick to the top of the trench and cut into the walls of the trench two feet.

TEES AND LATERALS: All tees and laterals connected to C900 sewer mains and all laterals connected to manholes, 16 feet or more in depth, shall be C900.

MANHOLE COUPLINGS: All manhole couplings (boots) shall be "Steel Band Fencote Boots" whenever the slope of the line entering or exiting the manhole is 10% or greater.

TRENCH BOTTOM CONDITIONS: Trench Bottom may be required to be undercut to a firm base and back filled with stone to prevent settling in areas of unsatisfactory material. Such a determination will be made by the City of Maryville (COM) at the time of construction.



SPECIFICATIONS:

- LOAD RATING: HEAVY DUTY
- MATERIAL SPECIFICATION: ASTM-A8R CLASS 30
- TOTAL WEIGHT OF FRAMES & COVERS: STANDARD: 275 LBS. (MIN.) WATERTIGHT: 485 LBS. (MIN.)
- COVER FACE SHALL BE EMBOSSED WITH THE SEAL OF THE CITY OF MARYVILLE AS SHOWN.
- MANHOLE FRAME & COVER VENDOR DWGS SHALL BE SUBMITTED TO THE MARYVILLE WATER & SEWER (WSD) DEPARTMENT AND APPROVED BY WSD PERSONNEL PRIOR TO ACCEPTANCE OF MANHOLE FRAMES & COVER.
- NO VARIATIONS OF MANHOLE FRAME & COVER DIMS. OR SPECS. SHALL BE ACCEPTED EXCEPT WHERE NOTED ON THIS DWG.

NOTES:

- ALL MH PARTS TO MEET C.O.M. STANDARDS
- PERFORATED COVERS MAY BE USED IN LIEU OF VENTS WITH C.O.M. APPROVAL.
- CONTRACTOR TO VERIFY ADEQUATE SIZE OF MANHOLE FOR VALVE USES.
- VERIFY PROPOSED TOP ACCESS MATERIALS AND OPENING SIZE WITH WATER & SEWER DEPT. (WSD) PRIOR TO ORDERING MATERIALS. OPENING MUST MEET WSD REQUIREMENTS FOR ACCESS WHICH MAY VARY WITH SIZE OF AIR RELEASE VALVE, TRAFFIC CONDITIONS, DEPTH OF LINE, AND OTHER ON SITE CONDITIONS.
- GENERALLY A STD. FRAME AND GRATE OR BICO TYPE HATCH WITH 24"X24" OR LARGER OPENING WILL BE REQUIRED. VERIFY TYPE OF ACCESS, OPENING SIZE, AND MATERIAL WITH WSD PRIOR TO ORDERING THE PRECAST FLAT TOP. UNAPPROVED ACCESS MAY BE REQUIRED BY THE CITY OF MARYVILLE.



WATER & SEWER DEPARTMENT
CITY OF MARYVILLE
MARYVILLE, TENNESSEE

DRAWN BY: GEF	TITLE: STANDARD DETAIL DWGS. SEWER	SCALE: NONE
APP'D BY: JG		SHEET 1 of 2
DATE:		
REV:		
DESCRIPTION:		W.O.

MARYVILLE RETAIL SITE
1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
PARCEL ID: MAP 57 PARCEL 9.06
CITY OF MARYVILLE
9th CIVIL DISTRICT
BLOUNT COUNTY, TENNESSEE

Engineer/Surveyor

LAND TECH
CIVIL ENGINEERING & LAND SURVEYING
100 McCammy Road, Knoxville, TN 37918
865.978.6510 www.landtechco.com



No.	Date	Revision	REVISION COMMENTS FROM CITY, TDEC AND TDOT
1	10/23/20		

Drawn By:	MBB
Checked By:	JLL
Approved By:	JLL
LT Project No.:	2004019
LT Drawing No.:	D(O)263-R1
Horiz. Scale:	Date: 07/14/20

Sheet Title

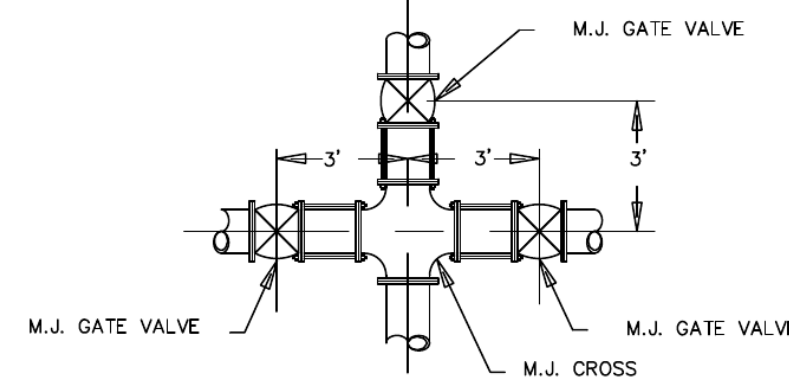
Details

Sheet ID

C-409

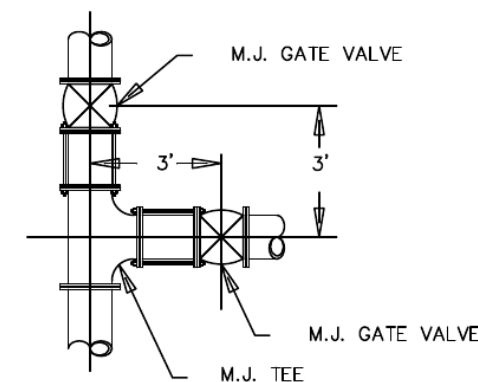
Sheet No. 21

Revision 3/10/99: As an alternate "SwivelX" or approved equal fitting may be used provided the indicated dimensions are maintained.



VALVE LOCATIONS @ CROSS

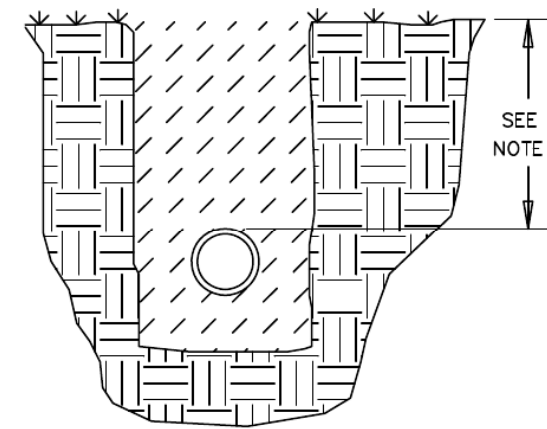
NOTE: In locations where the valve or valve and cap are likely to be disturbed or are for a temporary "dead end" the use of "all thread" as shown in the Fire Hydrant detail will be required by the City of Maryville.



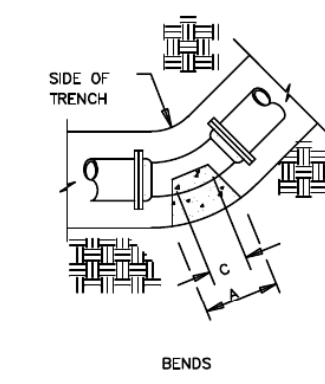
VALVE LOCATIONS @ TEE

PIPE BEDDING - A continuous and uniform bedding shall be provided in the trench for all buried pipe.

PIPE COVER - All distributor mains shall be provided with sufficient earth or other suitable cover to prevent freezing and provide protection to the pipe. The cover shall not be less than 36 inches for 6-inch and 8-inch pipe and 42-inches for 10-inch and 12-inch pipe measured above the top of the pipe. Reference the minimum depth notes "Water System Special Notes"



MLDI WATER LINE TRENCH DETAILS

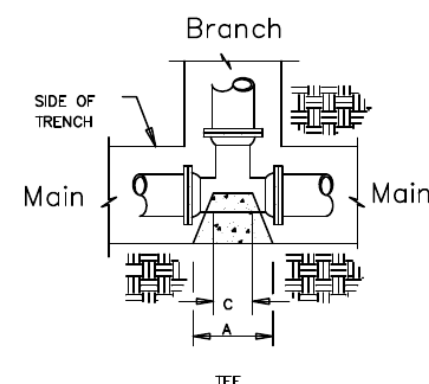


90 degree BENDS

SIZE	2"	4"	6"	8"	10"	12"	18"
A	9"	18"	24"	32"	40"	46"	66"
B	9"	18"	24"	32"	40"	46"	66"
C	9"	9"	12"	12"	15"	16"	22"
D	8"	8"	12"	16"	20"	25"	24"

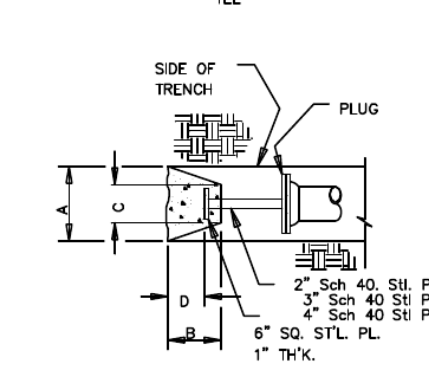
22 1/2 degree BENDS

SIZE	2"	4"	6"	8"	10"	12"	18"
A	9"	9"	13"	18"	21"	24"	36"
B	9"	9"	13"	18"	21"	24"	36"
C	8"	8"	10"	12"	14"	16"	15"
D	4"	4"	6"	9"	11"	13"	18"



TEE

MAIN	2"-6"	8"-12"	8"-10"	12"	12"	12"	18"
BRANCH	2"-6"	2"-6"	8"-10"	2"-6"	8"-10"	12"	16"-18"
A	20"	20"	33"	20"	33"	39"	57"
B	20"	20"	33"	20"	33"	39"	57"
C	12"	12"	12"	12"	12"	12"	30"
D	13"	13"	21"	13"	21"	26"	24"



PLUG

SIZE	2"	4"	6"	8"	10"	12"	18"
A	12"	14"	20"	22"	33"	38"	56"
B	12"	14"	20"	22"	33"	38"	56"
C	12"	12"	12"	12"	12"	12"	30"
D	11"	11"	11"	19"	22"	32"	32"

Thrust blocks for plugs shall be the wider of 1. the dimension shown above or 2. the width of the trench plus 2 inches measured at the soil bearing surface.

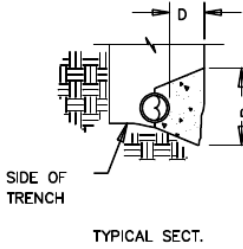
THRUST BLOCK DETAILS

45 degree BENDS

SIZE	2"	4"	6"	8"	10"	12"	18"
A	9"	13"	18"	24"	29"	34"	50"
B	9"	13"	18"	24"	29"	34"	50"
C	8"	8"	10"	12"	14"	16"	14"
D	6"	6"	9"	12"	15"	18"	18"

11 1/4 degree BENDS

SIZE	2"	4"	6"	8"	10"	12"	18"
A	9"	9"	9"	12"	15"	18"	26"
B	9"	9"	9"	12"	15"	18"	26"
C	8"	8"	10"	12"	14"	16"	15"
D	4"	4"	5"	6"	8"	9"	16"



The minimum thrust block dimensions in contact with the bearing soil shall be 9 inches by 9 inches

These dimensions are minimums based on 100 psi working line pressures and 2000 psi soil bearing capacity. For other working pressure and/or different soil bearing capacity the dimensions shall be recalculated by the engineer.

CITY OF MARYVILLE

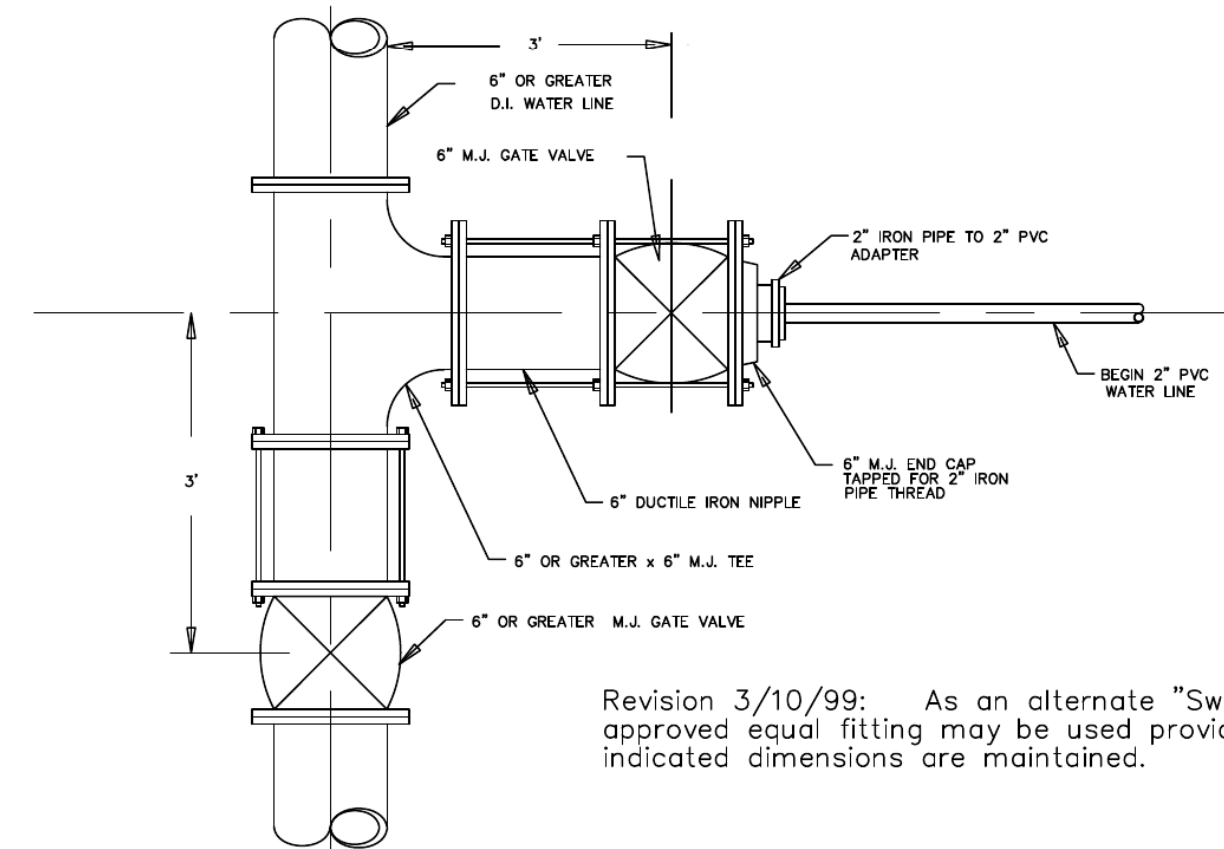
GENERAL UTILITY NOTES:

All sewer and water extensions shall be built in accordance with the RULES, REGULATIONS, RATES, AND POLICIES of the City of Maryville, Water & Sewer Department, Maryville, Tennessee which are available from the City of Maryville CDMO at www.maryville.com. In cases of conflict, the City of Maryville CDMO regulations shall rule. It shall be the developers and contractors responsibility to obtain and follow the regulations of the City of Maryville CDMO. Easements shall exist as per the subdivision plat or recorded easements documents. If the necessary easements are not in place, the developer shall obtain and furnish the City of Maryville CDMO with easements for the portions of utility lines that cross private property. The easement documents shall be reviewed by the City of Maryville CDMO for acceptability prior to signatures. All easement documents shall be recorded prior to construction of the utility lines. All sewer and water lines shall be laid in undisturbed native soil whenever practical. At the junction of all undisturbed soil and fill sections of the pipe trench, the backfill material shall be divided by an impervious section of fill (e.g. compacted clay) around the installed pipe to prevent ponding of water through the pipe bedding. Utilities crossing under other utilities shall be back filled with compacted No. 7 stone to the spring line of the upper utility to prevent settling of the utility. Any utility trench within the roadway live zone shall be totally backfilled with compacted stone as per the City of Maryville CDMO requirements. WATER AND SEWER systems shall not be granted final approval by the City of Maryville CDMO until "AS BUILT" drawings have been completed and are acceptable to the City of Maryville CDMO.

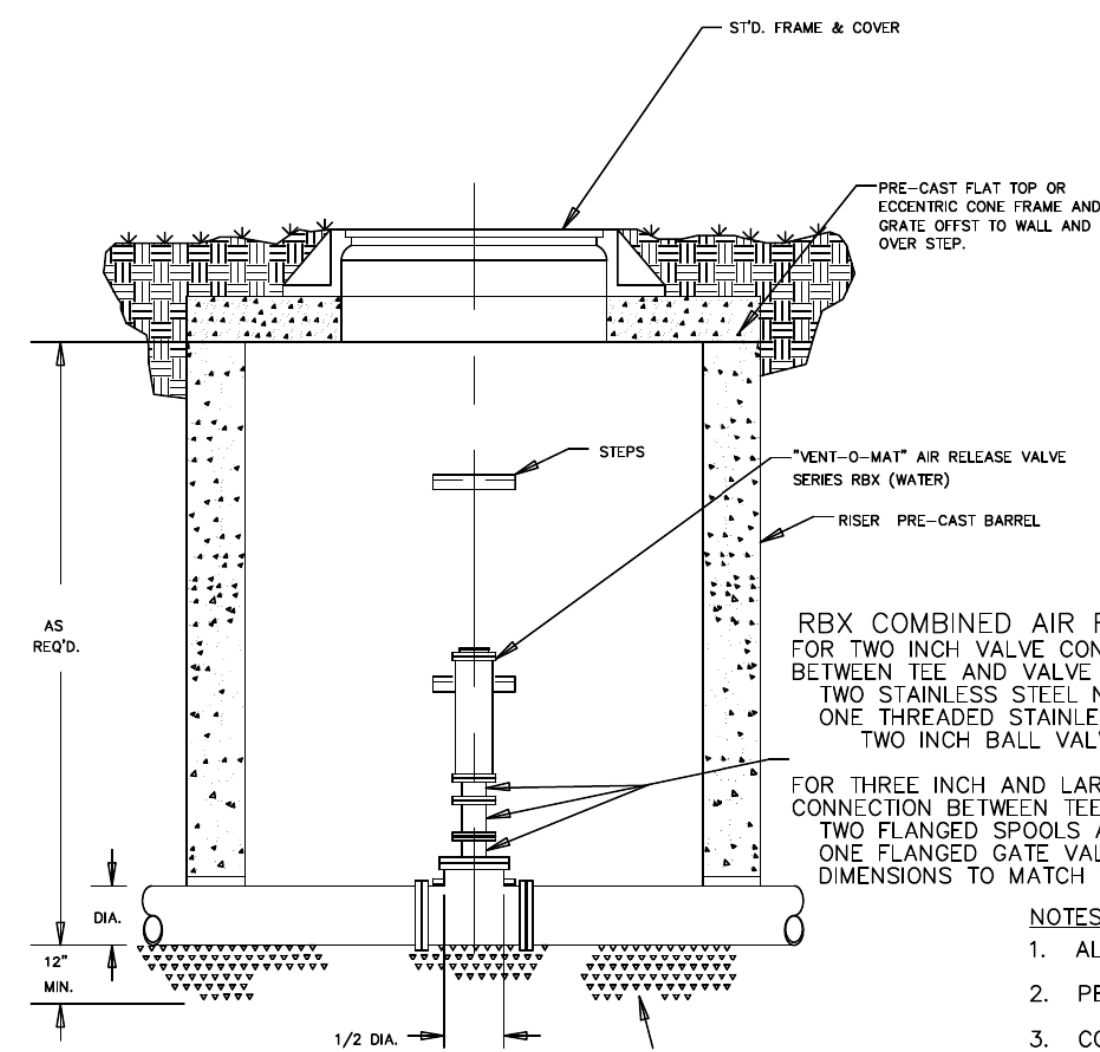
Where a two inch water meter is to be installed --

1. The appropriate sized tee.
2. The six inch gate valves may be eliminated and the tapped end cap (plug) placed directly on the tee.
3. A twelve inch brass nipple - the nipple shall be installed level.
4. A two inch wheel valve
5. The two inch valve shall be installed in either a valve box or meter box.

The City of Maryville will provide the twelve inch brass nipple and the two inch wheel valve.



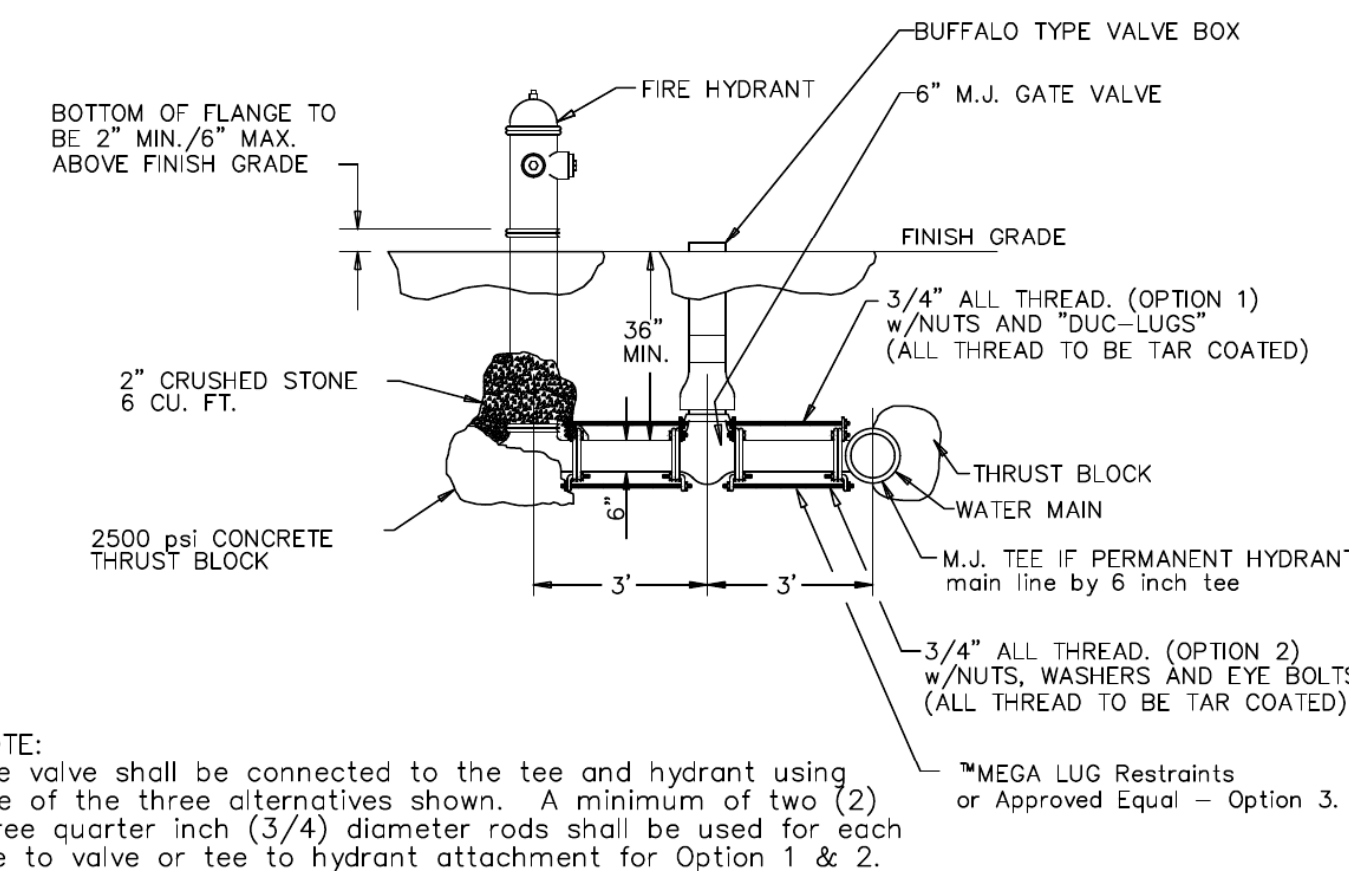
TIE-IN FOR 2" PVC WATER LINE TO 6" OR LARGER MAIN WATER LINE



WATER LINE COMBINED AIR RELEASE VALVE

- NOTES:
1. ALL MANHOLE PARTS TO MEET C.O.M. STANDARDS
 2. PERFORATED COVER MAY BE USED IN LIEU OF VENTS WITH C.O.M. APPROVAL
 3. CONTRACTOR TO VERIFY ADEQUATE CLEARANCES INSIDE OF MANHOLE FOR VALVE USE.
 4. LINE DEPTH MUST BE ADEQUATE TO ALLOW VALVE AND VALVE MANHOLE TO BE BELOW GROUND SURFACE.
 5. VERIFY PROPOSED TOP ACCESS MATERIALS AND OPENING SIZE WITH WATER QUALITY CONTROL DEPT. (WQC) PRIOR TO ORDERING MATERIALS. OPENING MUST MEET WQC REQUIREMENTS FOR ACCESS WHICH MAY VARY WITH SIZE OF AIR RELEASE VALVE, TRAFFIC CONDITIONS, DEPTH OF LINE, AND OTHER ON SITE CONDITIONS.
 6. GENERALLY A STD. FRAME AND GRATE, OR BILCO TYPE HATCH WITH A 24"x24" OR LARGER OPENING WILL BE REQUIRED. VERIFY TYPE OF ACCESS, OPENING SIZE, AND MATERIAL WITH WQC PRIOR TO ORDERING THE PRECAST FLAT TOP. UNAPPROVED ACCESS MAYBE REJECTED BY THE CITY OF MARYVILLE.

Revision 3/10/99: As an alternate "SwivelX" or approved equal fitting may be used provided the indicated dimensions are maintained.



TYPICAL FIRE HYDRANT INSTALLATION

NOTE: The valve shall be connected to the tee and hydrant using one of the three alternatives shown. A minimum of two (2) three quarter inch (3/4) diameter rods shall be used for each tee to valve or tee to hydrant attachment for Option 1 & 2.

CITY OF MARYVILLE WATER SYSTEM SPECIAL NOTES:

Depth - All water lines shall be installed a sufficient depth to provide for minimum cover of not less than 36 inches for 6" and 8" diameter pipes, 42 inches for 10", 12" and 14" pipe. COVER IS TO BE MEASURED FROM THE SUBGRADE ELEVATION AT THE CURB LINE OF THE ROAD ADJACENT TO THE PIPE LINE OR THE EXISTING GROUND AT THE TIME OF CONSTRUCTION OR THE FINISH GRADE DIRECTLY OVER THE PIPE, WHICHEVER IS LOWER. No pipe is to be laid so that a driveway will create a situation that will violate the minimum cover requirements.

MATERIALS - All materials used in the project shall be acceptable to the COM, Water & Sewer Department. All water lines greater than 2 inches in diameter shall be class 51 cement mortar lined ductile iron.

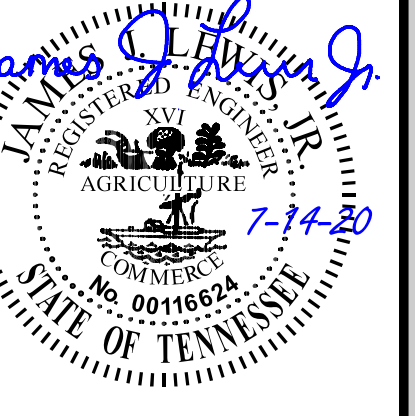
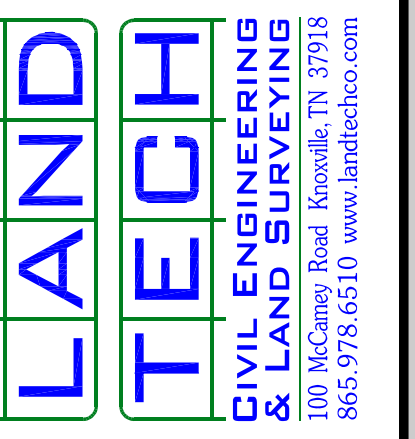
PRESSURE AND FLOW CONTROL - Pressure and flow reducing valves shall be installed in each house or at each connection to a structure to maintain domestic pressure at or below 80 psi unless the pipe system has been specifically designed to handle pressures in excess of 80 psi and permission is obtained from the COM, Water & Sewer Department.



WATER & SEWER DEPARTMENT CITY OF MARYVILLE MARYVILLE, TENNESSEE

DRAWN BY:	TITLE:	SCALE:
APPD BY: JG	STANDARD DETAIL DWGS.	NONE
DATE:	WATER	SHEET 1 of 1
DESCRIPTION:		

MARYVILLE RETAIL SITE
1421 W LAMAR ALEXANDER HWY, MARYVILLE TN
PARCEL ID: MAP 57 PARCEL 9.06
CITY OF MARYVILLE
9th CIVIL DISTRICT
BLOUNT COUNTY, TENNESSEE



No.	Date	Revision	REVISION COMMENTS FROM CITY, TDEC AND TDOT
1	10/23/20		

Drawn By:	MBB
Checked By:	JJL
Approved By:	JJL
LT Project No.:	2004019
LT Drawing No.:	D(O)263-R1
Horiz. Scale:	Date: 07/14/20

Sheet Title

Details

Sheet ID
C-410
Sheet No. 22

