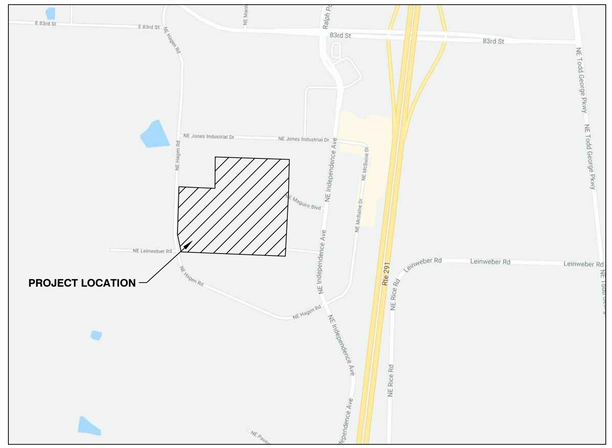
LAKEWOOD BUSINESS CENTER
ON I-470 - PLAT S
Lot 1
STREET & STORM SEWER CONSTRUCTION PLANS
Part of Section 20, Township 48 N, Range 31 W
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

CONSTRUCTION AND DESIGN NOTES:

1. STREET PAVEMENT SHALL CONSIST OF TYPE CG-1 CURB & GUTTER WITH PAVEMENT PER TABLE LS-2 OF THE LEE-S SUMMIT DESIGN AND CONSTRUCTION MANUAL. SEE SHEET C-112 FOR TYPICAL SECTION AND PAVEMENT OPTIONS.
2. INDUSTRIAL LOCAL STREETS SHALL BE PER APWA STANDARD FOR 60' R/W SECTION 5200 TABLE LS-1.
3. STORM SEWER PIPE SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) AS APPROVED BY THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.
4. CURB INLETS SHALL BE PER CITY OF LEE'S SUMMIT STANDARD DRAWING NO. STM-1. JUNCTION BOXES SHALL BE PER CITY OF LEE'S SUMMIT STANDARD DRAWING NO. STM-3. FLARED END SECTIONS SHALL BE PER CITY OF LEE'S SUMMIT STANDARD DRAWING NO. STM-5.

GENERAL NOTES:

1. ALL CONSTRUCTION TO CONFORM TO THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
2. ALL REQUIRED EASEMENTS WITHIN THE BOUNDARY OF THIS PROJECT SHALL BE PROVIDED FOR ON THE FINAL PLAT.
3. ANY REQUIRED EASEMENT LOCATED OUTSIDE OF THE THE BOUNDARY OF THIS PROJECT SHALL BE PROVIDED FOR BY SEPARATE DOCUMENT PRIOR TO ISSUANCE OF CONSTRUCTION PERMITS.
4. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEE'S SUMMIT PUBLIC WORKS INSPECTION AT 816-969-1800 AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
5. THE CONTRACTOR SHALL NOTIFY POWELL CWM AT 816-373-4800 OF ANY CONFLICTS WITH THE IMPROVEMENTS PROPOSED BY THESE PLANS AND EXISTING SITE CONDITIONS.
6. THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER AND OBTAIN THE APPROPRIATE BLASTING PERMITS FOR ANY REQUIRED BLASTING. IF BLASTING IS ALLOWED, ALL BLASTING SHALL CONFORM TO STATE AND LOCAL ORDINANCES.
7. DO NOT SCALE THESE DRAWINGS.
8. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, BONDS, AND INSURANCE REQUIRED BY THE CITY.
9. THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND ARE APPROXIMATE ONLY. THEY DO NOT CONSTITUTE ACTUAL FIELD LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
10. CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL STATE AND LOCAL CODES.
11. THE DEVELOPER / OWNER SHALL CONTROL EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION, AND SHALL KEEP THE STREETS CLEANOF MUD AND DEBRIS.
12. ALL EXCESS MATERIAL SHALL BE REMOVED LEGALLY FROM SITE AND DISPOSED OF OFF SITE.
13. TRAFFIC CONTROL AND MAINTENANCE OF TRAFFIC DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PUBLIC WORKS DEPARTMENT. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MUTCD.
14. EROSION CONTROL MEASURES SHALL BE PROVIDED AT ALL LOCATIONS WHERE DRAINAGE IS LEAVING THE PROJECT SITE. THE EROSION CONTROL PLAN SHOWS MINIMUM EROSION CONTROL MEASURES TO BE PROVIDED. ADDITIONAL SITE SPECIFIC MEASURES MAY BE NECESSARY AND SHALL BE PROVIDED BY THE DEVELOPER / OWNER, AT THE CONTRACTOR'S EXPENSE.
15. ANY EXISTING OR NEW STORM SEWER INLETS IN USE DURING DEMOLITION, GRADING OR CONSTRUCTION SHALL HAVE INLET PROTECTION.
16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND QUANTITIES SHOWN ON THESE PLANS AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCING ANY RELATED WORK.
17. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND INSTALLATIONS, INCLUDING SERVICE CONNECTIONS, IN ADVANCE OF EXCAVATION OR TRENCHING, AND PROTECT THE SAME AS REQUIRED TO MAINTAIN GOOD OPERATING CONDITION.
18. THE CONTRACTOR SHALL USE HIS OWN INFORMATION AND NOT RELY UPON ANY INFORMATION SHOWN ON THE DRAWINGS CONCERNING EXISTING UNDERGROUND INSTALLATIONS.
19. ANY DELAY, ADDITIONAL WORK, OR EXTRA COST TO THE CONTRACTOR CAUSED BY OR RESULTING FROM DAMAGE TO EXISTING UNDERGROUND INSTALLATIONS SHALL NOT CONSTITUTE A CLAIM FOR EXTRA WORK, ADDITIONAL PAYMENT, OR DAMAGES. ALL DAMAGE TO EXISTING UTILITIES INCLUDING SERVICE CONNECTIONS SHALL RE REPAIRED BY AND AT THE EXPENSE OF THE CONTRACTOR.
20. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES AND OBTAIN ALL NECESSARY INSPECTIONS THROUGHOUT THE CONSTRUCTION ACTIVITIES.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO ALL UTILITIES, STORM DRAINAGE, AND SIGNS AS REQUIRED, ALL WORK SHALL BE IN ACCORDANCE WITH THE GOVERNING AUTHORITIES' SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN THE CONTRACTOR'S CONTRACT WITH THE OWNER.
22. REMOVAL OF EXISTING PAVING AND/OR BORING AT THE CONTRACTOR'S DISCRETION SHALL BE INCLUDED AS A PART OF ALL UTILITY INSTALLATIONS WHERE APPLICABLE AT THE CONTRACTOR'S EXPENSE AS WELL AS REPLACEMENT/REPAIR OF ALL DISTURBED MATERIALS IN ACCORDANCE WITH LOCAL SPECIFICATIONS AND CODES.
23. THE CONTRACTOR SHALL COORDINATE ALL UTILITY WORK, INCLUDING DEMOLITION AND REMOVAL, WITH THE APPROPRIATE UTILITY COMPANIES AND SERVICE PROVIDERS PRIOR TO DISCONTINUATION OF SERVICE. UTILITIES NOT NOTED FOR DEMOLITION SHALL REMAIN IN SERVICE AT ALL TIMES.
24. THE CONTRACTOR SHALL MAINTAIN EXISTING UTILITY SERVICE TO ALL ADJOINING PROPERTIES UNTIL THE RELOCATED UTILITIES ARE INSPECTED AND APPROVED.
25. ALL EXISTING UTILITIES SHALL BE REMOVED BACK TO THE CLOSEST STRUCTURE AND CAPPED AT THAT LOCATION.
26. REMOVE ALL TREES, GRASS, WEEDS, ROOTS, AND OTHER DEBRIS FROM THE AREA TO BE EXCAVATED, FILLED OR GRADED.
27. IF EXCAVATED MATERIAL IS UNSUITABLE FOR COMPACTION, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, THE CONTRACTOR SHALL FURNISH SUITABLE BORROW.
28. ALL SLOPES, CUT OR FILL, SHALL BE GRADED TO MAXIMUM FINISH SLOPE OF THREE (3) FEET HORIZONTAL TO ONE (1) FOOT VERTICAL. NO GRADED SLOPE SHALL EXCEED 3:1 WITHOUT SPECIFIC SLOPE PLANTING OR REINFORCEMENT.
29. SITE SHALL BE GRADED TO ASSURE DRAINAGE OF WATER FROM ALL SURFACES.
30. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL SURFACE AND GROUNDWATER CONTROL MEASURES.
31. GRADES NOT OTHERWISE INDICATED ON THE PLANS SHALL BE UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE GIVEN. ABRUPT CHANGES IN SLOPES SHALL BE WELL ROUNDED.
32. STORM DRAINAGE SYSTEMS WITHIN THE PROJECT AREA ARE TO BE COMPLETELY CLEANED AT THE COMPLETION OF THE PROJECT.
33. EXISTING TREES WHERE INDICATED SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. ALL TREE PROTECTION FENCING TO BE INSPECTED DAILY AND ALL GRADING ACTIVITIES TO REMAIN OUTSIDE THE DRIP LINES.
34. ALL TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO GRADING.
35. ALL SOILS UNDERCUTTING, OVER EXCAVATION, UNDER DRAIN INSTALLATION, AND ROCK FILLS SHALL BE DETERMINED AND DIRECTED BY THE SOILS ENGINEER.
36. FILL AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR MINIMUM UNLESS OTHERWISE INDICATED BY GEOTECHNICAL ENGINEER.
37. UNLESS OTHERWISE INDICATED, ALL DISTURBED SOIL AREAS TO RECEIVE 6 INCHES OF TOPSOIL AND TO BE SEEDED AND MULCHED.



VICINITY MAP
NOT TO SCALE

CALL BEFORE YOU DIG 1-800-DIG-RITE

UTILITY CONTACTS:

EVERGY	816-471-5275
SPIRE	800-582-1234
COMCAST	816-795-1100
AT&T	816-325-5610
SPECTRUM	816-358-5360
CITY OF LEE'S SUMMIT PUBLIC WORKS	816-969-1800
CITY OF LEE'S SUMMIT PUBLIC WORKS INSPECTIONS	816-969-1800
CITY OF LEE'S SUMMIT WATER UTILITIES	816-969-1900

UTILITY NOTE:

THE UTILITIES AS SHOWN IN THESE DRAWINGS WERE DEVELOPED FROM THE INFORMATION AVAILABLE. IT IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE.

SHEET INDEX:

BENCHMARK:

SE CORNER OF AREA INLET LOCATED IN THE SE CORNER OF LOT 1 NORTH OF NE MAGUIRE BLVD.

ELEVATION=967.99

ENGINEER'S CERTIFICATION:

I HEREBY CERTIFY THAT THIS PROJECT HAS BEEN DESIGNED AND THESE PLANS PREPARED IN ACCORDANCE WITH THE CURRENT DESIGN CRITERIA OF THE CITY OF LEE'S SUMMIT, MISSOURI AND THE STATE OF MISSOURI. I FURTHER CERTIFY THAT THESE PLANS WERE IN ACCORDANCE TO AASHTO STANDARDS.

CITY OF LEE'S SUMMIT, MISSOURI

APPROVED DATE:_____

BY:_____
CITY ENGINEER

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ARCHITECTURE/ENGINEERING/SURVEYING
3200 S. State Route 291, Bldg. 1, Independence, MO 64057
(816) 373-4800 | powellcwm.com

Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

DEVELOPER/OWNER
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1120 NW EAGLE RIDGE BLVD.
GRAIN VALLEY, MO 64029
(816) 229-8115

LAKEWOOD BUSINESS CENTER ON I-470 - PLAT S
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JACKSON COUNTY

STATE OF MISSOURI
TOBY L. WILLIAMS
NUMBER PE-2019038948
PROFESSIONAL ENGINEER
12-31-2022

Toby L. Williams, PE
PE-2019038948 (MISSOURI #)

REVISIONS
NO. DATE / DESCRIPTION

DRAWN BY: JV
CHECKED BY: TLW
PROJECT #: 21-1883
ISSUE DATE: 03/31/2022
ISSUED FOR:
PERMIT

COVER SHEET

C-010

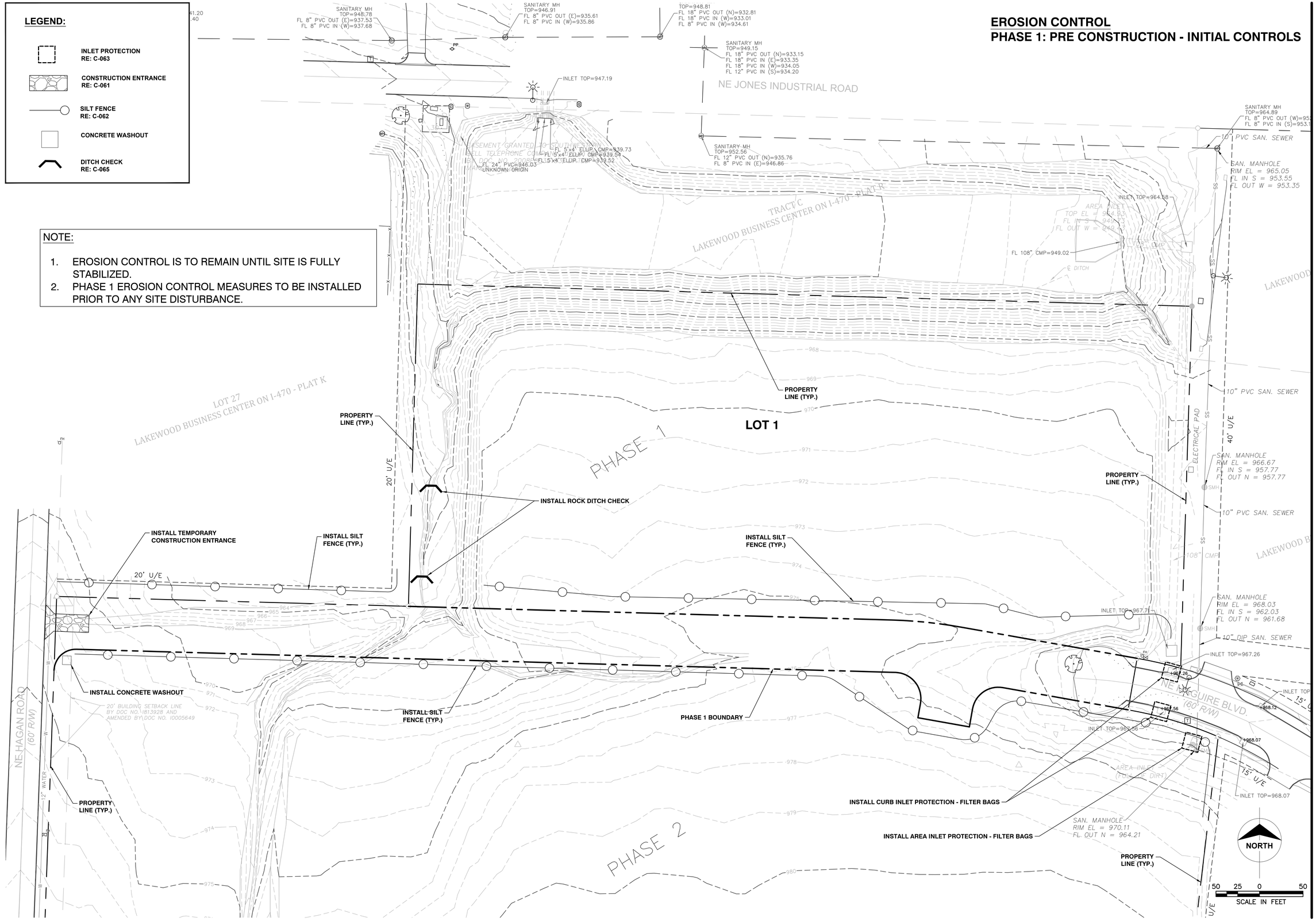
EROSION CONTROL
PHASE 1: PRE CONSTRUCTION - INITIAL CONTROLS

LEGEND:

- INLET PROTECTION — RE: C-063
- CONSTRUCTION ENTRANCE — RE: C-061
- SILT FENCE — RE: C-062
- CONCRETE WASHOUT
- DITCH CHECK — RE: C-065

NOTE:

1. EROSION CONTROL IS TO REMAIN UNTIL SITE IS FULLY STABILIZED.
2. PHASE 1 EROSION CONTROL MEASURES TO BE INSTALLED PRIOR TO ANY SITE DISTURBANCE.



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EROSION CONTROL PHASE 1

C-051

EROSION CONTROL
PHASE 2: CONSTRUCTION ACTIVITIES - INTERIM STABILIZATION

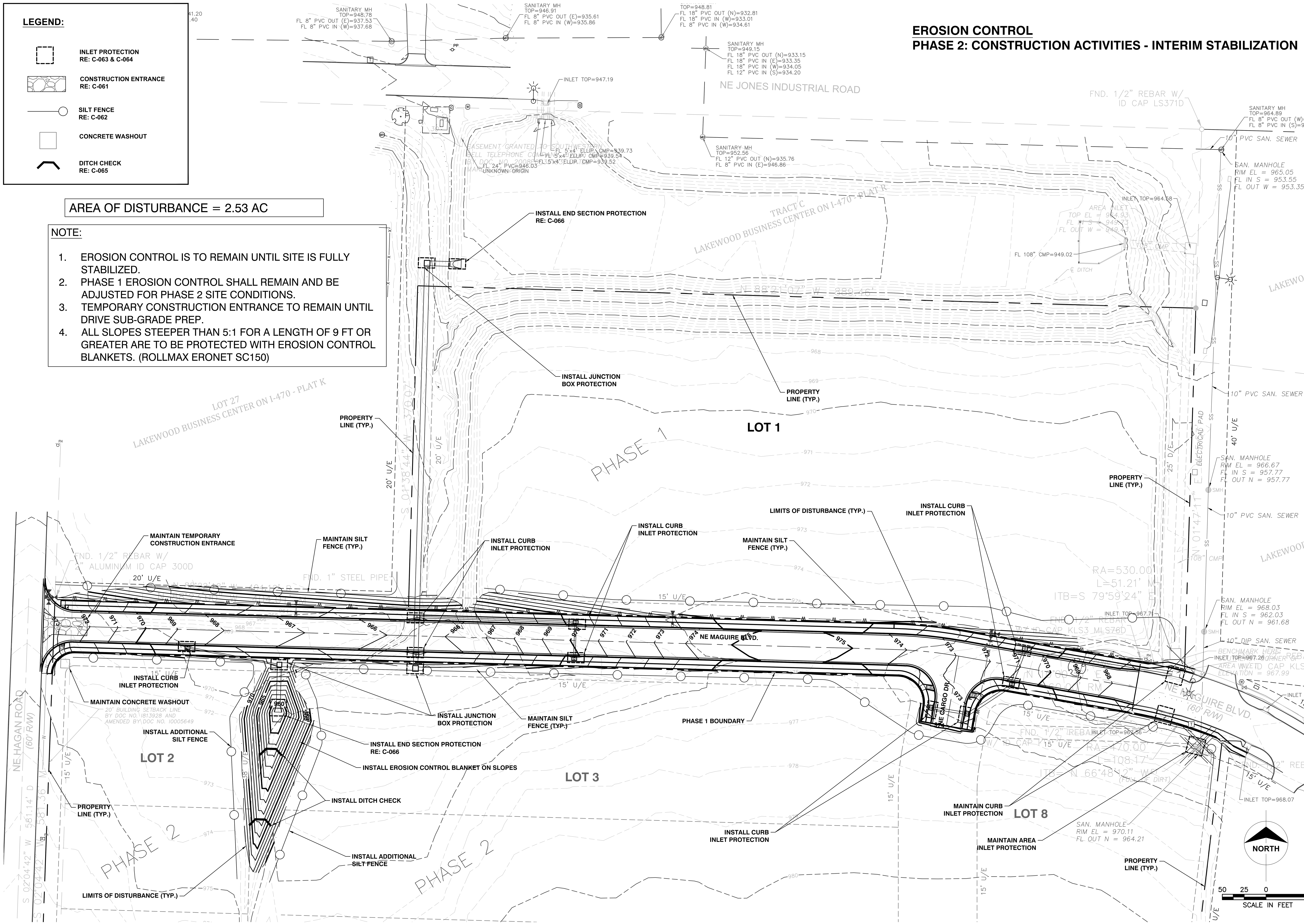
LEGEND:

- INLET PROTECTION RE: C-063 & C-064
- CONSTRUCTION ENTRANCE RE: C-061
- SILT FENCE RE: C-062
- CONCRETE WASHOUT
- DITCH CHECK RE: C-065

AREA OF DISTURBANCE = 2.53 AC

NOTE:

1. EROSION CONTROL IS TO REMAIN UNTIL SITE IS FULLY STABILIZED.
2. PHASE 1 EROSION CONTROL SHALL REMAIN AND BE ADJUSTED FOR PHASE 2 SITE CONDITIONS.
3. TEMPORARY CONSTRUCTION ENTRANCE TO REMAIN UNTIL DRIVE SUB-GRADE PREP.
4. ALL SLOPES STEEPER THAN 5:1 FOR A LENGTH OF 9 FT OR GREATER ARE TO BE PROTECTED WITH EROSION CONTROL BLANKETS. (ROLLMAX ERONET SC150)



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EROSION CONTROL PHASE 2

C-052

EROSION CONTROL
PHASE 3: POST CONSTRUCTION - FINAL STABILIZATION

LEGEND:

- INLET PROTECTION RE: C-131
- SEED OR SOD RE: C-131

AREA OF DISTURBANCE = 2.53 AC

NOTE:

1. EROSION CONTROL IS TO REMAIN UNTIL SITE IS FULLY STABILIZED.
2. SEED/SOD ALL DISTURBED AREAS.
3. ALL PHASE 2 EROSION CONTROL SHALL REMAIN UNTIL SITE IS FULLY STABILIZED.

NE JONES INDUSTRIAL ROAD

NE HAGAN ROAD (60' R/W)

NE MAGUIRE BLVD. (60' R/W)

NE CARGO DR

LOT 1

LOT 2

LOT 3

LOT 8

PHASE 1

PHASE 2

MAINTAIN END SECTION PROTECTION

PROPERTY LINE (TYP.)

SEED OR SOD DISTURBED AREAS (TYP.)

LIMITS OF DISTURBANCE (TYP.)

MAINTAIN CURB INLET PROTECTION

MAINTAIN AREA INLET PROTECTION

LAKEWOOD BUSINESS CENTER ON I-470 - PLAT K

LAKEWOOD BUSINESS CENTER ON I-470 - PLAT R

LAKEWOOD BUSINESS CENTER ON I-470 - PLAT S

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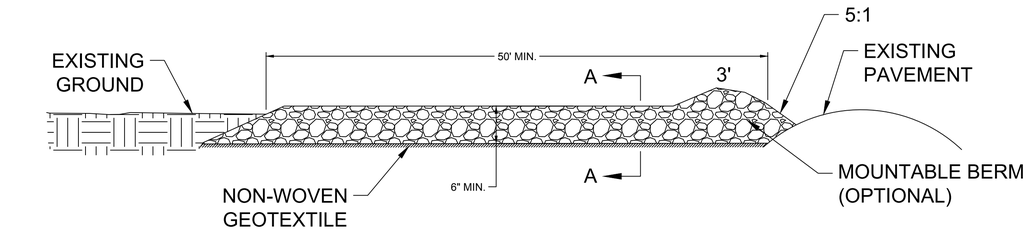
EROSION CONTROL PHASE 3

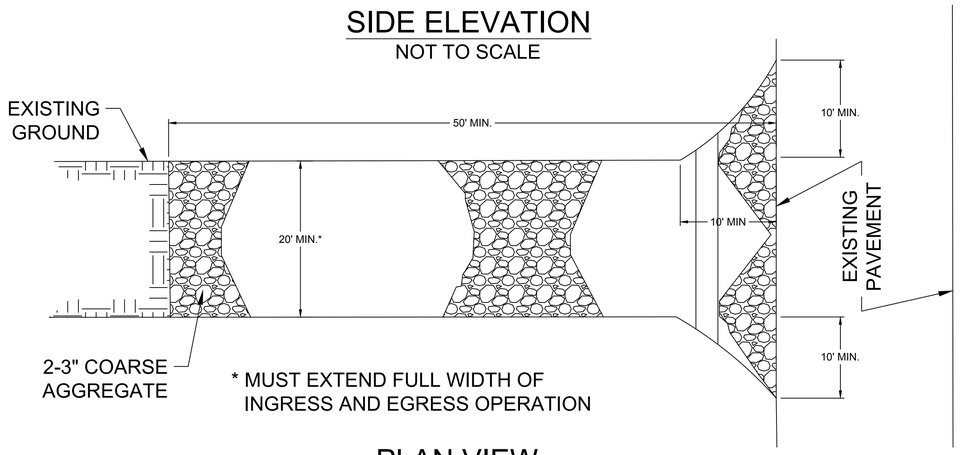
C-053

NORTH

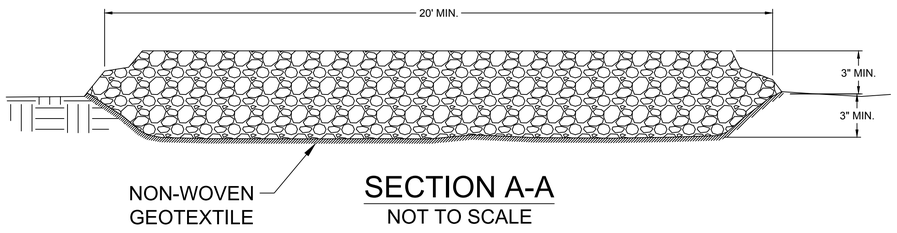
50 25 0 50
SCALE IN FEET



SIDE ELEVATION
NOT TO SCALE



PLAN VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE

TEMPORARY CONSTRUCTION ENTRANCE

PER APWA DRAWING ESC-01

TEMPORARY CONSTRUCTION ENTRANCE PAD NOTES:

A) INSTALLATION:

1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS. IF POSSIBLE, LOCATE WHERE PERMANENT ROADS WILL EVENTUALLY BE CONSTRUCTED.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. IF SLOPE TOWARDS THE PUBLIC ROAD EXCEEDS 2%, CONSTRUCT A 6- TO 8-INCH HIGH RIDGE WITH 3H:1V SIDE SLOPES ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE EDGE OF THE PUBLIC ROAD TO DIVERT RUNOFF AWAY FROM IT.
4. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES ALONG PUBLIC ROADS.
5. PLACE STONE TO DIMENSIONS AND GRADE AS SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
6. DIVER ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE.
7. IF WET CONDITIONS ARE ANTICIPATED, PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY.

B) TROUBLESHOOTING:

1. CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL IF ANY OF THE FOLLOWING OCCUR:
   a. INADEQUATE RUNOFF CONTROL TO THE EXTENT THAT SEDIMENT WASHES ONTO PUBLIC ROAD - INSTALL DIVERSIONS OR OTHER RUNOFF CONTROL MEASURES.
   b. SMALL STONE, THIN PAD, OR ABSENCE OF GEOTEXTILE FABRIC RESULTS IN RUTS AND MUDDY CONDITIONS AS STONE IS PRESSED INTO SOIL - INCREASE STONE SIZE OR PAD THICKNESS OR ADD GEOTEXTILE FABRIC.
   c. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC - EXTEND PAD BEYOND THE MINIMUM 50-FOOT LENGTH AS NECESSARY.

C) INSPECTION AND MAINTENANCE:

1. INSPECT STONE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER 1/2-INCH OR GREATER STORM EVENTS.
2. RESHAPE PAD AS NEEDED FOR PROPER DRAINAGE AND RUNOFF CONTROL.
3. TOPDRESS WITH CLEAN 2- AND 3-INCH STONE AS NEEDED.
4. IMMEDIATELY REMOVE MUD OR SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROAD. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.
5. REMOVE ALL TEMPORARY ROAD MATERIALS FROM AREAS WHERE PERMANENT VEGETATION WILL BE ESTABLISHED.

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03-31-2022

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PE-2019038948 (MISSOURI #)

REVISIONS
NO. DATE / DESCRIPTION

DRAWN BY: JV
CHECKED BY: TLW
PROJECT #: 21-1883
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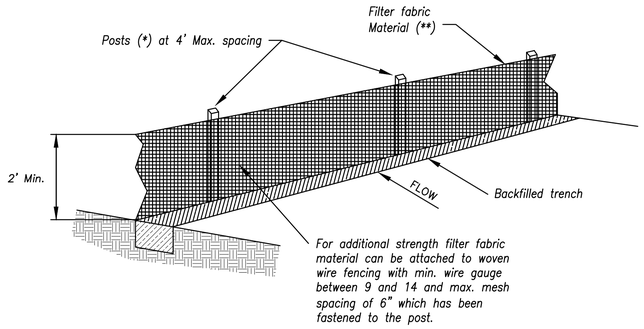
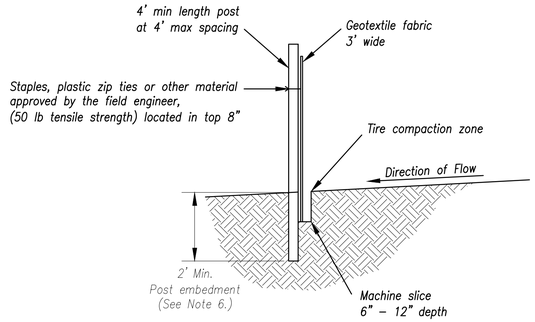
ISSUED FOR: PERMIT

EROSION CONTROL DETAILS -1

C-061





(*) POSTS
– MIN. LENGTH 4'
– HARDWOOD 1 3/16" x 1 3/16"
– NO.2 SOUTHERN PINE 2 5/8" x 2 5/8"
– STEEL 1.33 LB/FT

(**) – Geotextile Fabric shall meet the requirements of AASHTO M288

SILT FENCE DETAILS

Not to Scale

Notes:

1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
2. Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
4. Attach fabric to upstream side of post.
5. Install posts a minimum of 2' into the ground.
6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ⅓ the height of silt fence.
2. Repair as necessary to maintain function and structure.

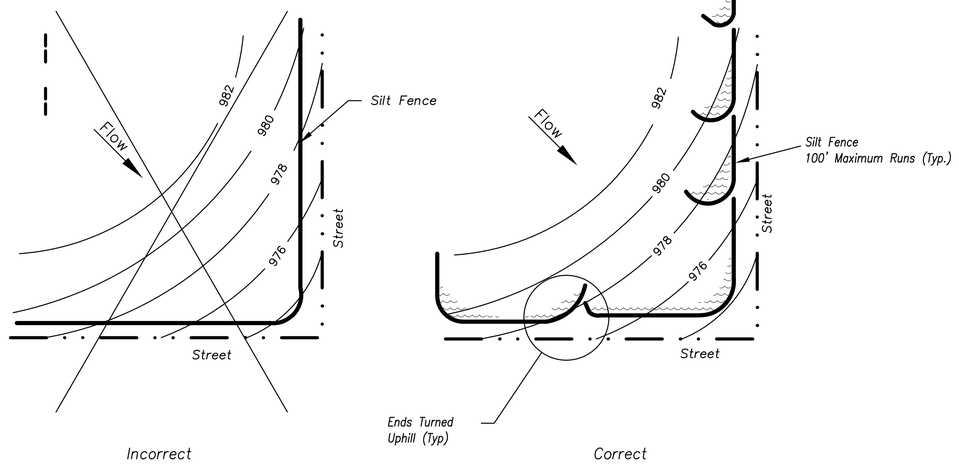
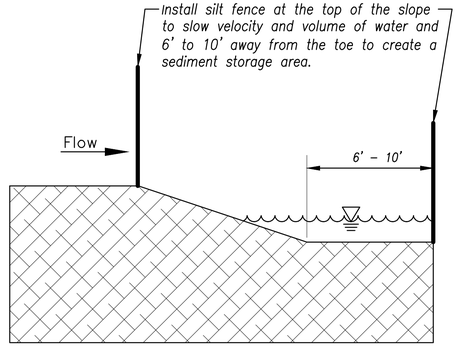
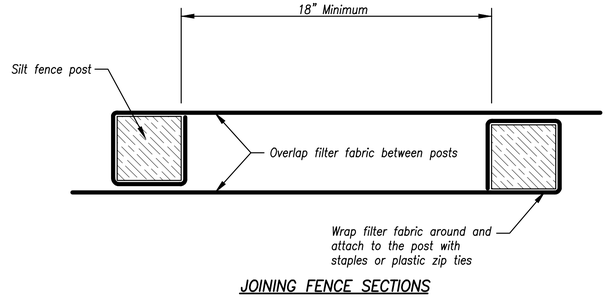


Figure A

SILT FENCE LAYOUT

Not to Scale





JOINING FENCE SECTIONS

Not to Scale

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METRO CHAPTER
SILT FENCE	STANDARD DRAWING NUMBER ESC-03
	ADOPTED: 10/24/2016

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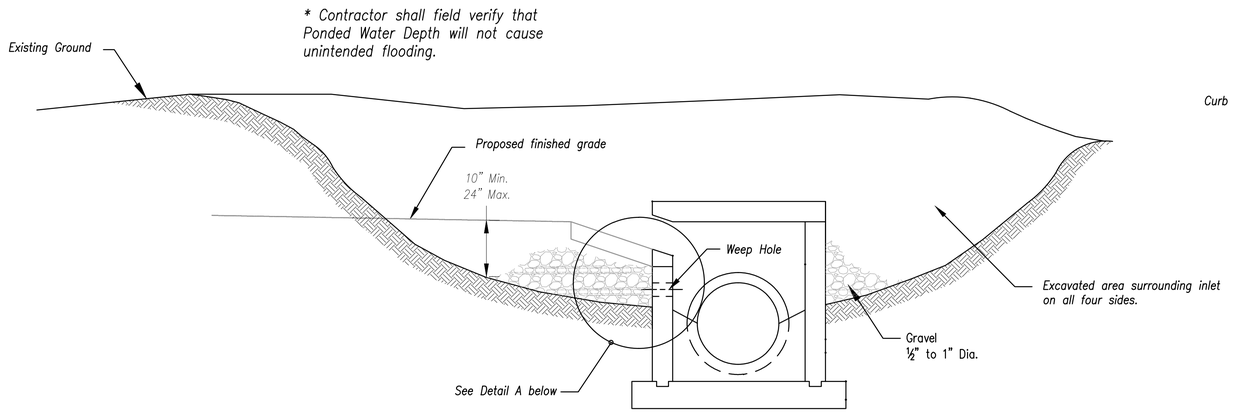
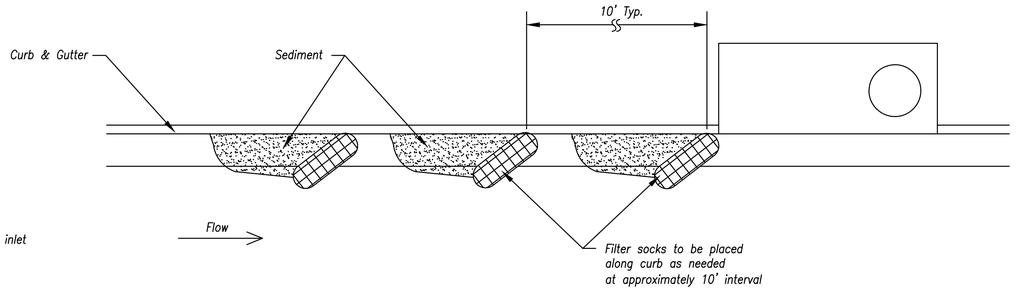
REVISIONS
NO. DATE / DESCRIPTION

DRAWN BY: JV
CHECKED BY: TLW
PROJECT #: 21-1883
ISSUE DATE: 03/31/2022
ISSUED FOR: PERMIT

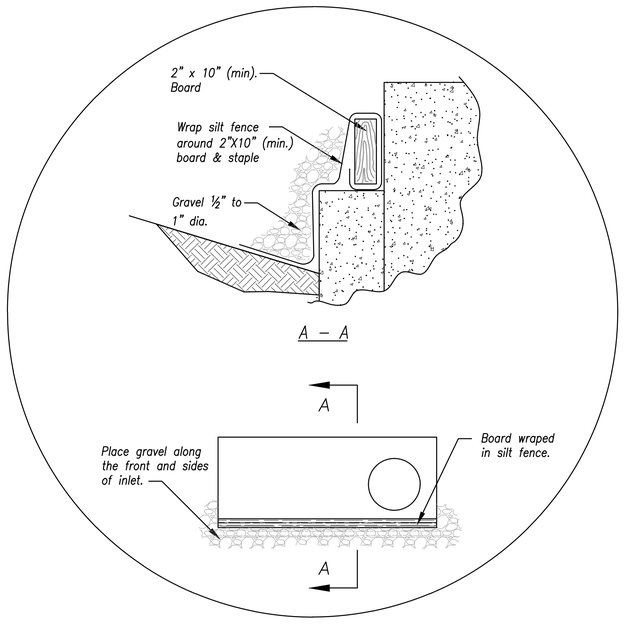
EROSION CONTROL DETAILS -2

C-062





On Grade Curb Inlet Protection



Detail A

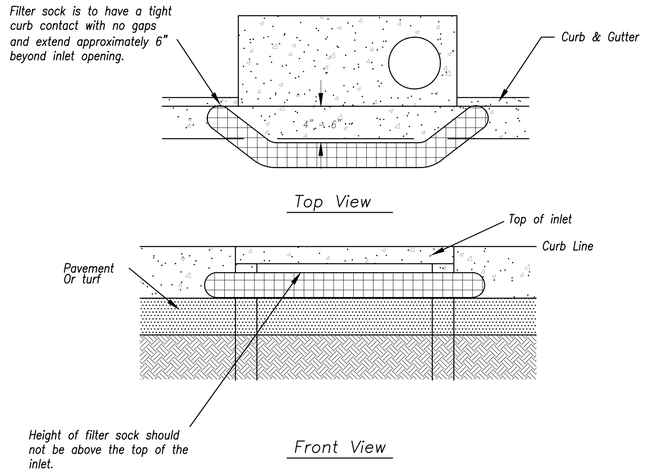
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" X 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.



Sump Inlet Sediment Filter

LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METRO CHAPTER
CURB INLET PROTECTION	STANDARD DRAWING NUMBER ESC-06
	ADOPTED: 10/24/2016

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Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

DEVELOPER/OWNER
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LAKEWOOD BUSINESS CENTER ON I-470 - PLAT S
2710 NE HAGEN ROAD
LEE'S SUMMIT, MO 64064
JACKSON COUNTY

STATE OF MISSOURI
TOBY L. WILLIAMS
NUMBER PE-2019038948
PROFESSIONAL ENGINEER
12-31-2022

Toby L. Williams, PE
PE-2019038948 (MISSOURI #)

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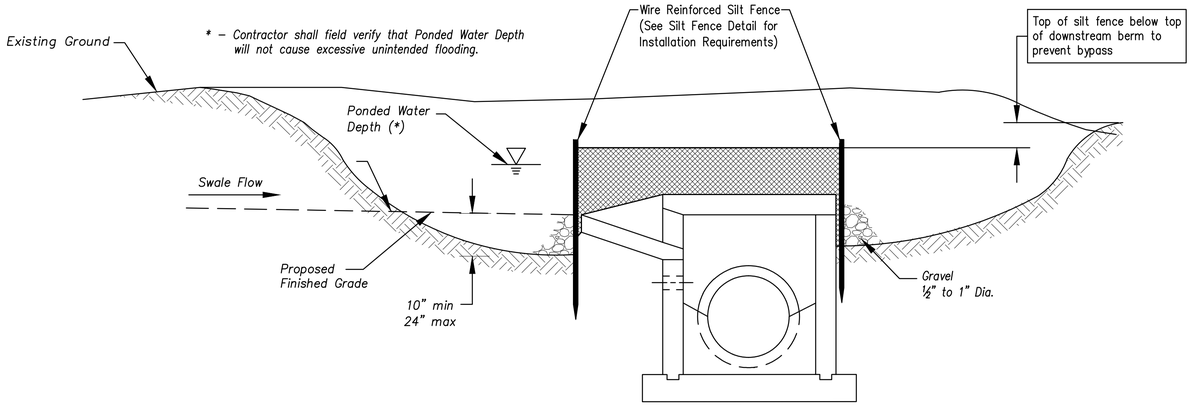
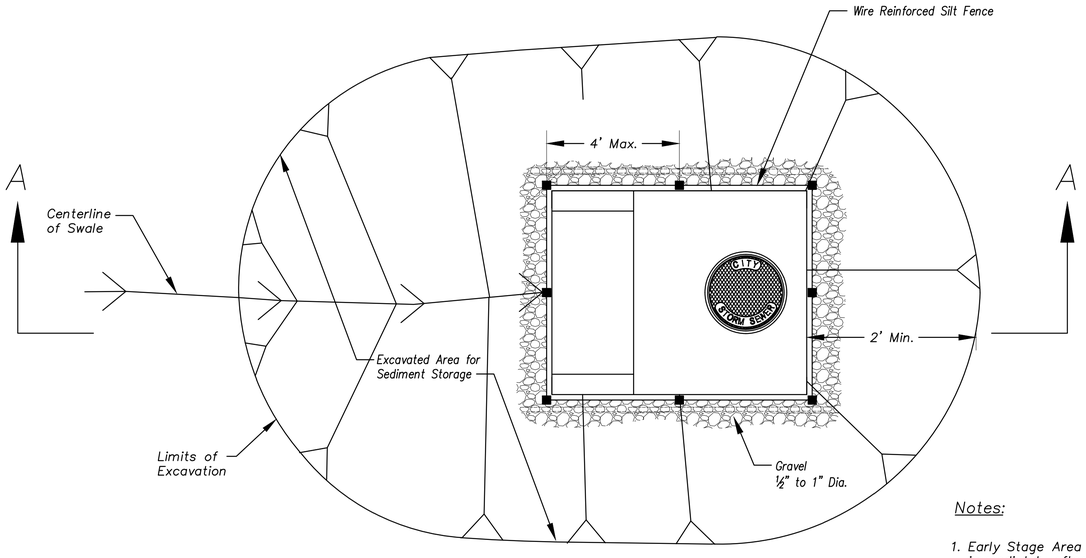
EROSION CONTROL DETAILS -3

C-063



Section A–A

Not to Scale

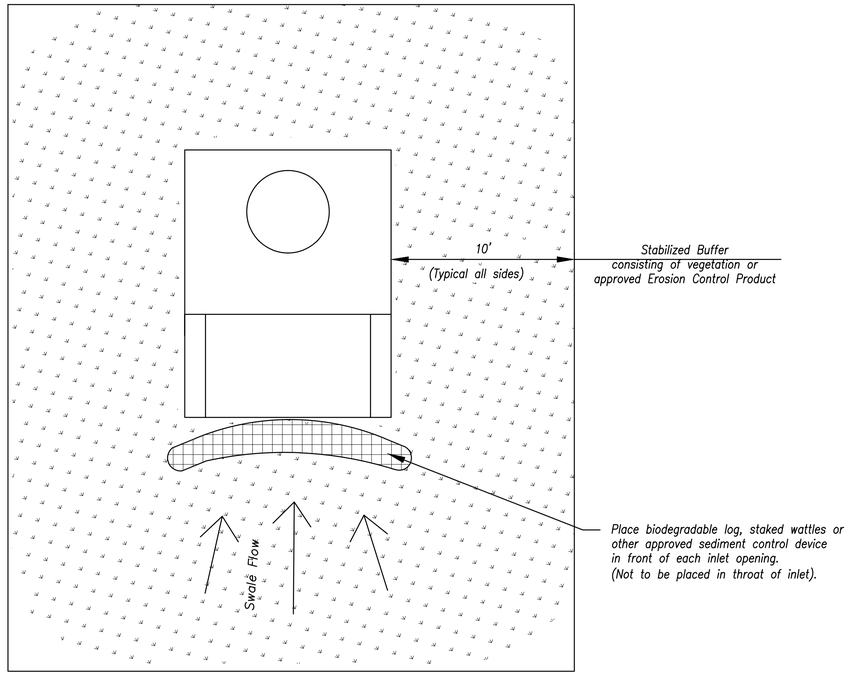


Plan

Not to Scale

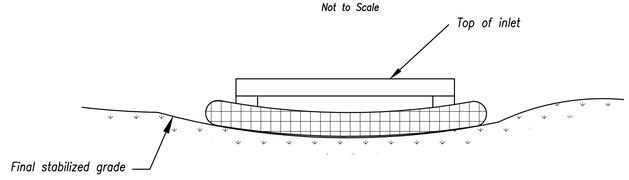
EARLY STAGE AREA INLET

(All open boxes and inlets not at final grade)



Plan

Not to Scale



Front View

LATE STAGE AREA INLET

(Area inlets at final grade and existing inlets)

Notes:

1. Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
2. Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.
3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
4. Wire reinforced silt fence may be used in place of silt fence attached to wood frame.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METRO CHAPTER
AREA INLET AND JUNCTION BOX PROTECTION	STANDARD DRAWING NUMBER ESC-07 ADOPTED: 10/24/2016

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JACKSON COUNTY

STATE OF MISSOURI
TOBY L. WILLIAMS
NUMBER PE-2019038948
PROFESSIONAL ENGINEER
12-31-2022

Toby L. Williams, PE
PE-2019038948 (MISSOURI #)

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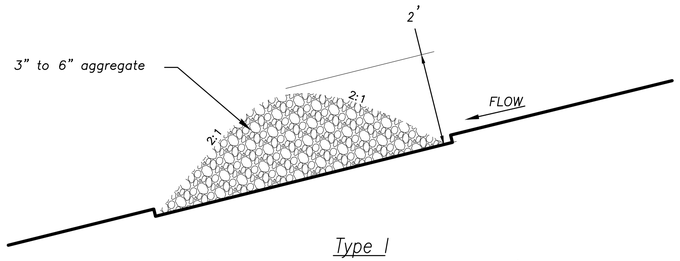
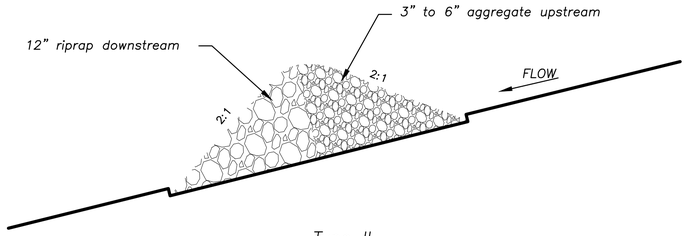
EROSION CONTROL DETAILS -4

C-064



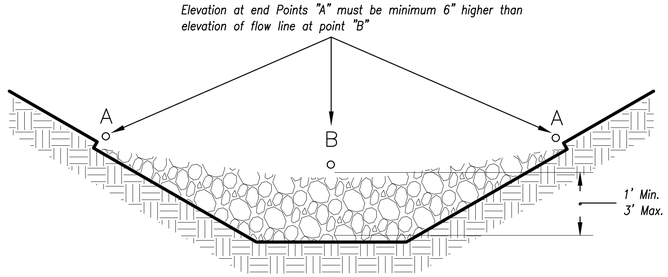
Type I
(2 Acres or less of Drainage Area)
Not to Scale



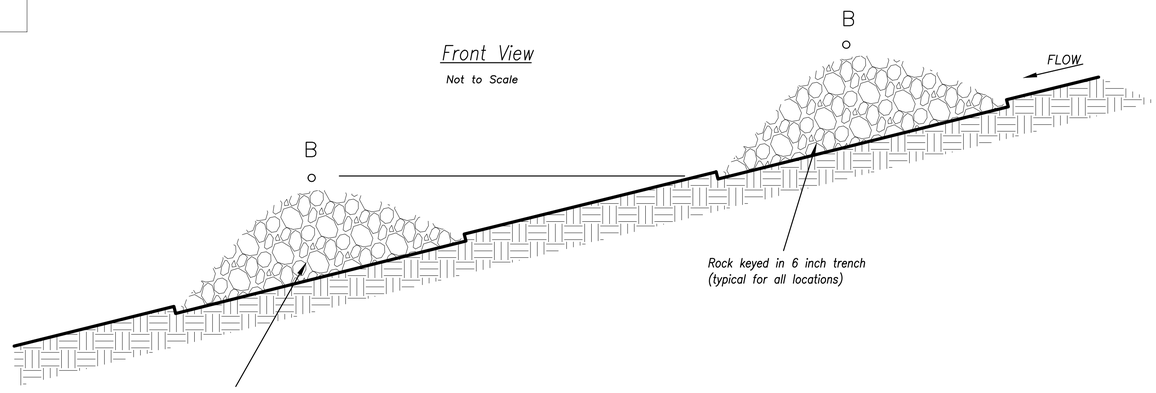
Type II
(2–10 Acres of Drainage Area)
Not to Scale

ROCK DITCH CHECK

Temporary Rock Ditch Check Spacing	
Ditch Centerline Slope (%)	Spacing Interval (Feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
Note: Use this spacing only for Rock Ditch Checks.	



Front View
Not to Scale



Spacing Between Check Dams (all types)
Not to Scale

Notes:

1. Rock check dams shall be used only for drainage areas less that 10 acres unless approved by the City Engineer.
2. Use rock checks only in situations where the ditch slope exceeds 6%.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of the ditch check.
2. Replace and reshape as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METRO CHAPTER
ROCK DITCH CHECKS	STANDARD DRAWING NUMBER ESC-10
	ADOPTED: 10/24/2016

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JACKSON COUNTY

STATE OF MISSOURI
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12-31-2022

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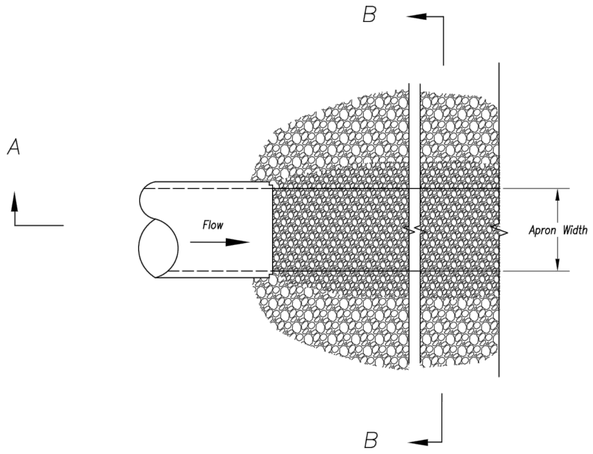
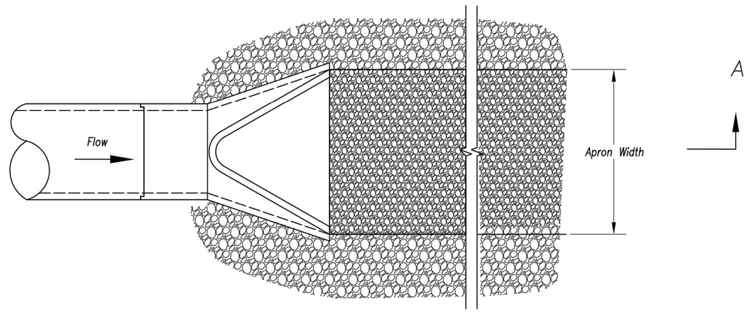
EROSION CONTROL DETAILS -5

C-065



Plan View
Not to Scale



Plan View
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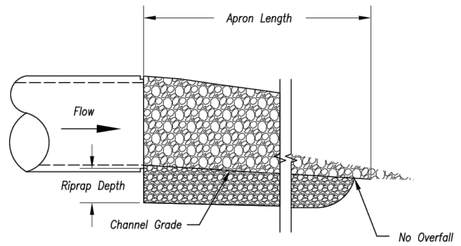

Section A–A
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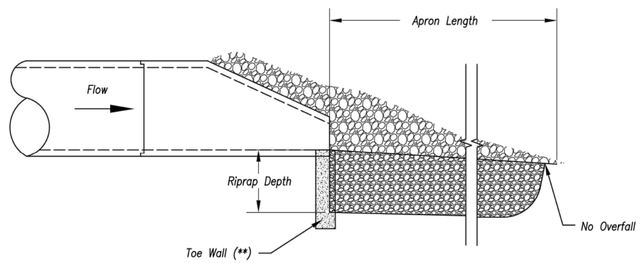
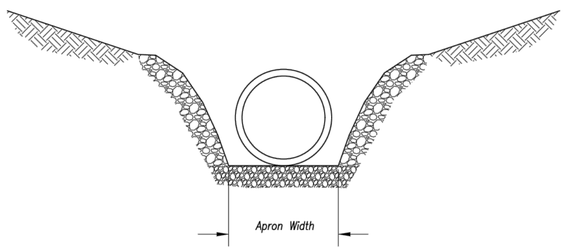


Section A–A
Not to Scale

OUTLET PROTECTION WITH END SECTION



Section B–B
Not to Scale

OUTLET PROTECTION W/O END SECTION

Notes:

1. Rock all sides steeper than 3:1.
2. Stabilize all disturbed areas downstream of outlet to the limits of disturbance.
3. Alternative outlet protection and slope stabilization measures may be used with approval by the Engineer.
4. Install riprap apron so that it is no higher than flowline of pipe.
5. Reference APWA Specification 2650 for rock type, size, and placement.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION

KANSAS CITY METRO CHAPTER

OUTLET PROTECTION

STANDARD DRAWING NUMBER ESC-14

ADOPTED: 10/24/2016

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LAKEWOOD BUSINESS CENTER OF I-470 - PLAT S
2710 NE HAGEN ROAD
LEE'S SUMMIT, MO 64064
JACKSON COUNTY

STATE OF MISSOURI
TOBY L. WILLIAMS
NUMBER PE-2019038948
03-31-2022
PROFESSIONAL ENGINEER

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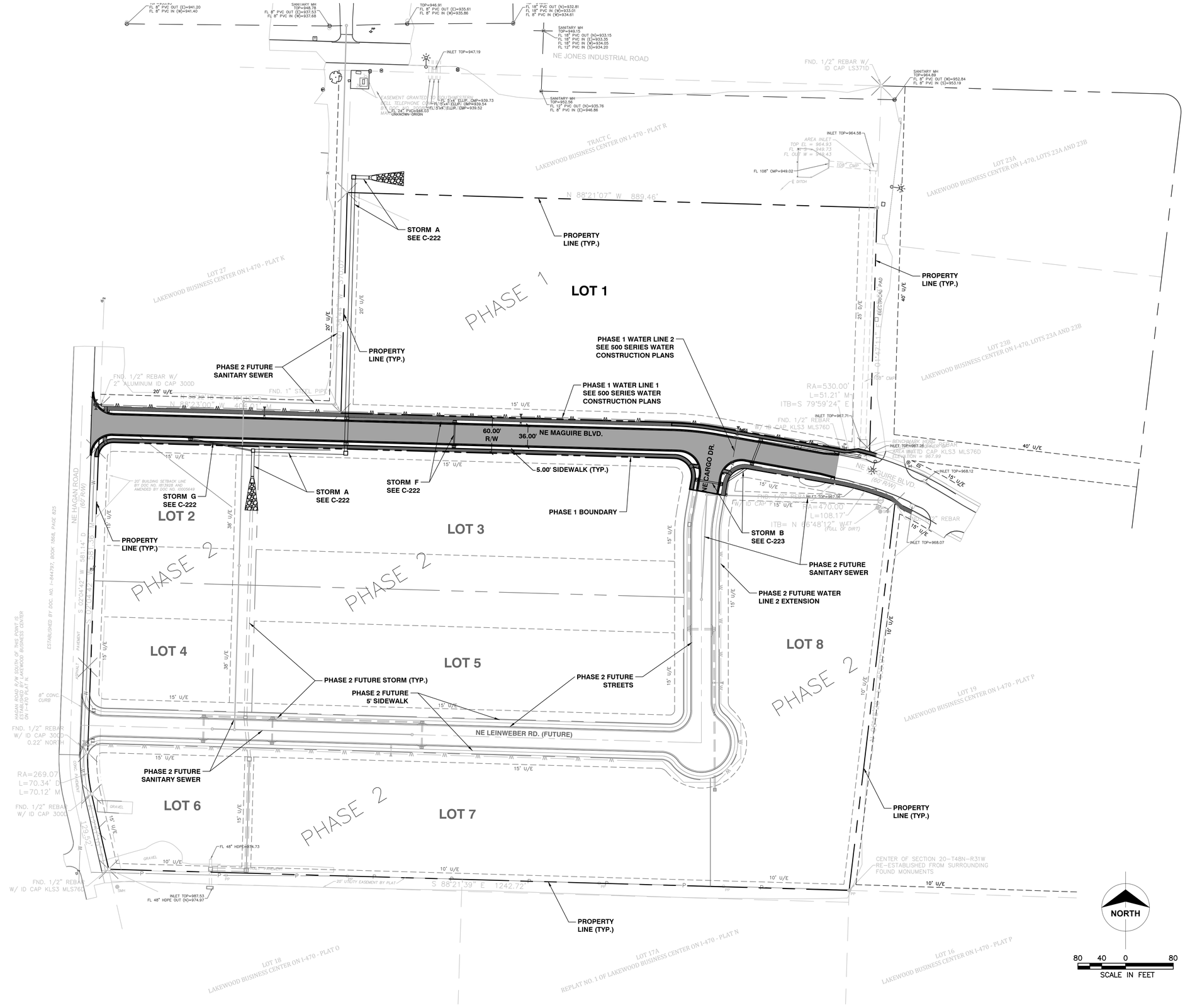
EROSION CONTROL DETAILS -6

C-066



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PERMIT

OVERALL SITE PLAN

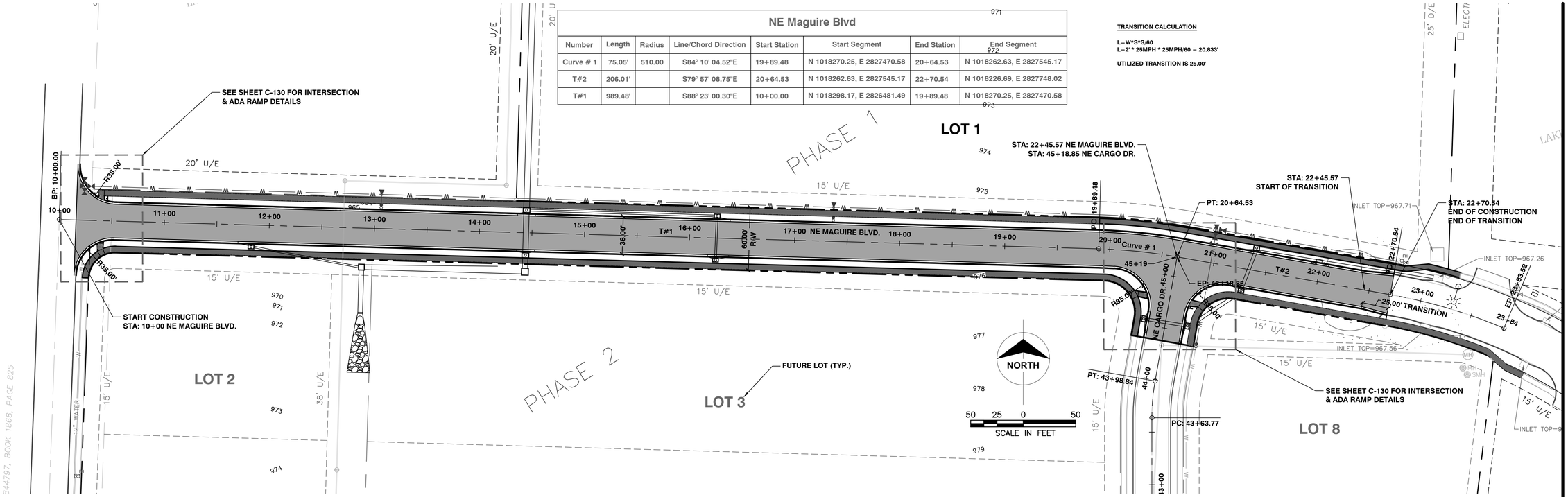
C-100

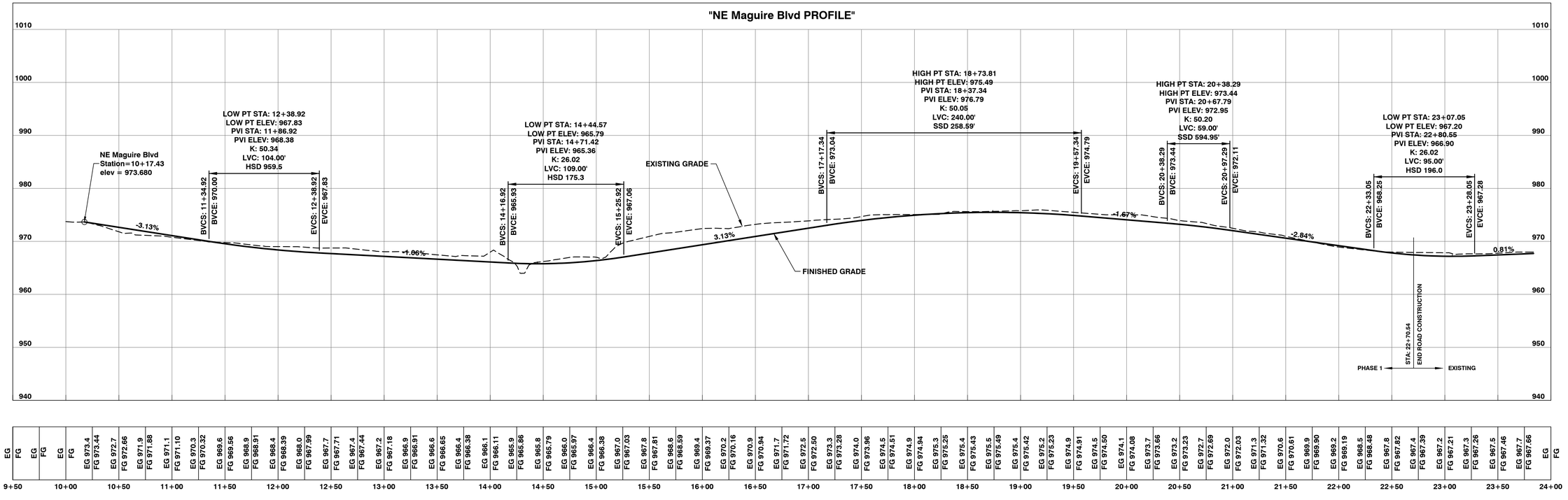
NE Maguire Blvd							
Number	Length	Radius	Line/Chord Direction	Start Station	Start Segment	End Station	End Segment
Curve # 1	75.05'	510.00	S84° 10' 04.52"E	19+89.48	N 1018270.25, E 2827470.58	20+64.53	N 1018262.63, E 2827545.17
T#2	206.01'		S79° 57' 08.75"E	20+64.53	N 1018262.63, E 2827545.17	22+70.54	N 1018226.69, E 2827748.02
T#1	989.48'		S88° 23' 00.30"E	10+00.00	N 1018298.17, E 2826481.49	19+89.48	N 1018270.25, E 2827470.58

TRANSITION CALCULATION

L=W*S*S/60
L=2' * 25MPH * 25MPH/60 = 20.833'

UTILIZED TRANSITION IS 25.00'





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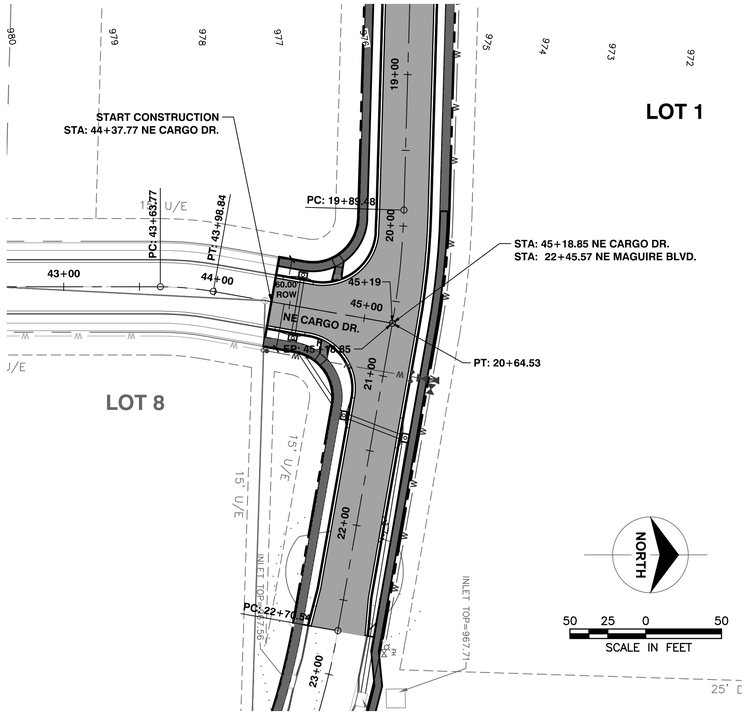
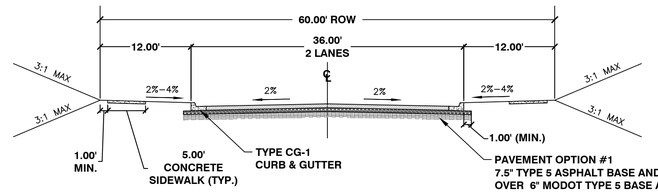
STREET PLAN
& PROFILE -1

C-111

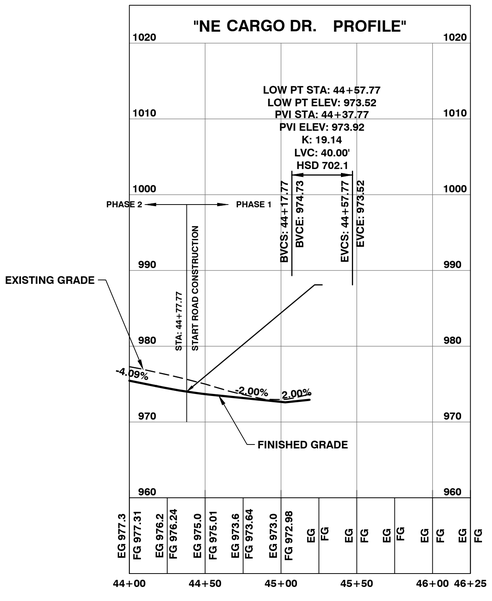




TYPICAL SECTION
(INDUSTRIAL LOCAL STREET)
N.T.S.

PAVEMENT OPTION #1
7.5" TYPE 5 ASPHALT BASE AND 2" TYPE 5 OR 6 ASPHALT SURFACE OVER 6" MODOT TYPE 5 BASE AND 9" OF FLY ASH STABILIZED SUBGRADE IN ACCORDANCE WITH THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.

PAVEMENT OPTION #2
7.5" TYPE 5 ASPHALT BASE AND 2" TYPE 5 OR 6 ASPHALT SURFACE OVER 12" MODOT TYPE 5 BASE AND GEOGRID/GEOTEXTILE IN ACCORDANCE WITH THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.



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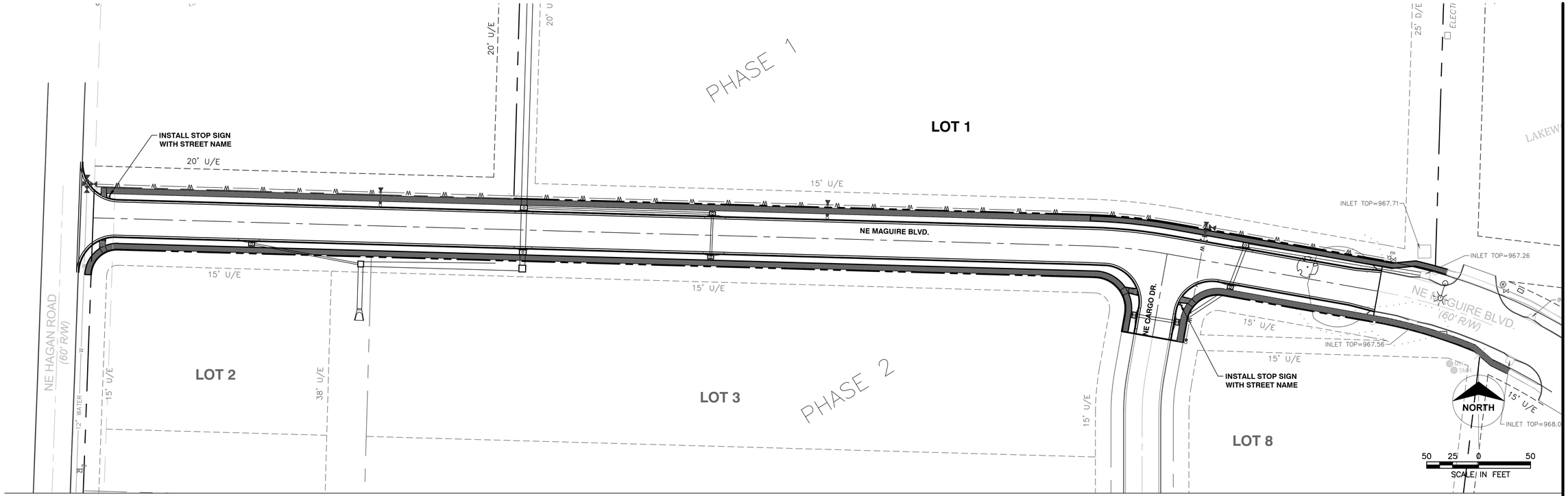
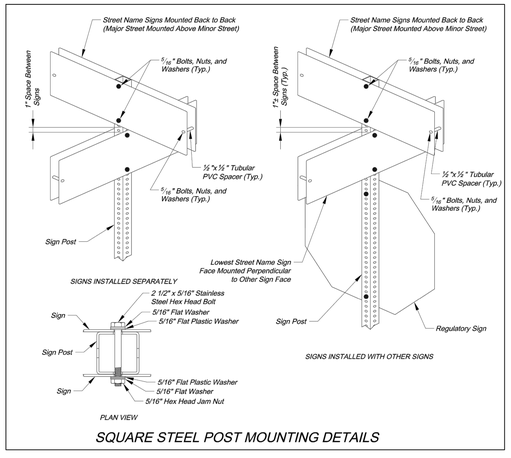
STREET PLAN & PROFILE - 2

C-112



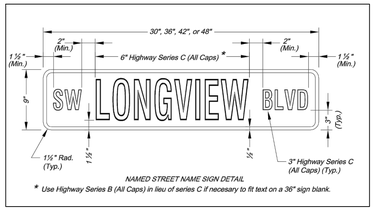


SQUARE STEEL POST MOUNTING DETAILS

SQUARE STEEL POST DETAILS

SQUARE STEEL POST NOTES:

1. Square steel sign posts and break-away anchor shall consist of the following materials:
   - Sign Post - 14 Ga. 2" x 2" Square Steel Post
   - Post Anchor - 12 Ga. 2 ½" x 2 ½" x 36" Square Steel Post
   - Anchor Sleeve - 12 Ga. 2 ½" x 2 ½" x 18" Square Steel Post
2. 14 Gauge posts must meet a certified minimum yield strength of 60,000 psi.
3. In all installations the first hole above the finished grade line on the sign post, anchor, and anchor sleeve must be in line for the insertion of the corner bolt.
4. The maximum area for one sign post is 9.0 square feet. A sign or combination of signs with an area greater than 9.0 square feet will require two posts. Also, signs with a width greater than 36" (not including 36" x 36" diamond shaped signs) will require two posts.

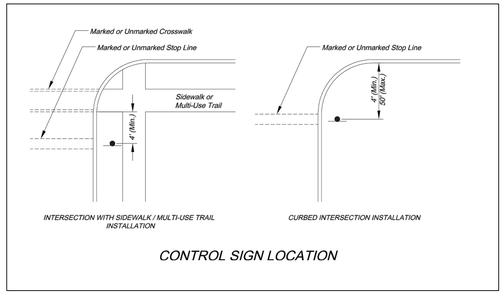


NAMED STREET NAME SIGN DETAIL

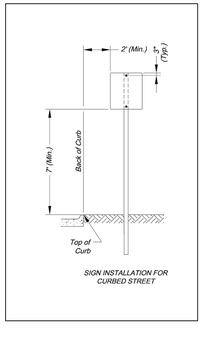
* Use Highway Series B (All Caps) in lieu of series C if necesary to fit text on a 36" sign blank.

NOTES:

1. For all street name signs, the legend shall be white and the background shall be green.
2. Arrows shall be added to street name signs where the name of a street changes at an intersection. Street name signs with arrows are to be installed on each side of the intersection to indicate the change in names. Arrows shall be white.
3. The "PRIVATE STREET" tag should be added to the end of street name signs to indicate where a street that is outside the right-of-way intersects a public street. The background for the "PRIVATE STREET" tag shall be yellow.



CONTROL SIGN LOCATION



SIGN INSTALLATION FOR CURBED STREET

SIGN MOUNTING DETAILS

* The height to the bottom of a sign when it is located in a pedestrian walkway or extends into a walkway shall be a minimum of 80 inches above the walkway.

NOTE:

1. Generally, the sign mounting height should not be more than 1' greater than the minimum mounting height.

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Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

DEVELOPER/OWNER
DAVID WARD
NORTH OAK SAFETY STORAGE, LLC
1120 NW EAGLE RIDGE BLVD.
GRAIN VALLEY, MO 64029
(816) 229-8115

LAKEWOOD BUSINESS CENTER OF SUMMIT
2710 NE HAGEN ROAD
LEE'S SUMMIT, MO 64064
JACKSON COUNTY

STATE OF MISSOURI
TOBY L. WILLIAMS
NUMBER PE-2019038948
PROFESSIONAL ENGINEER
12-31-2022

Toby L. Williams, PE
PE-2019038948 (MISSOURI #)

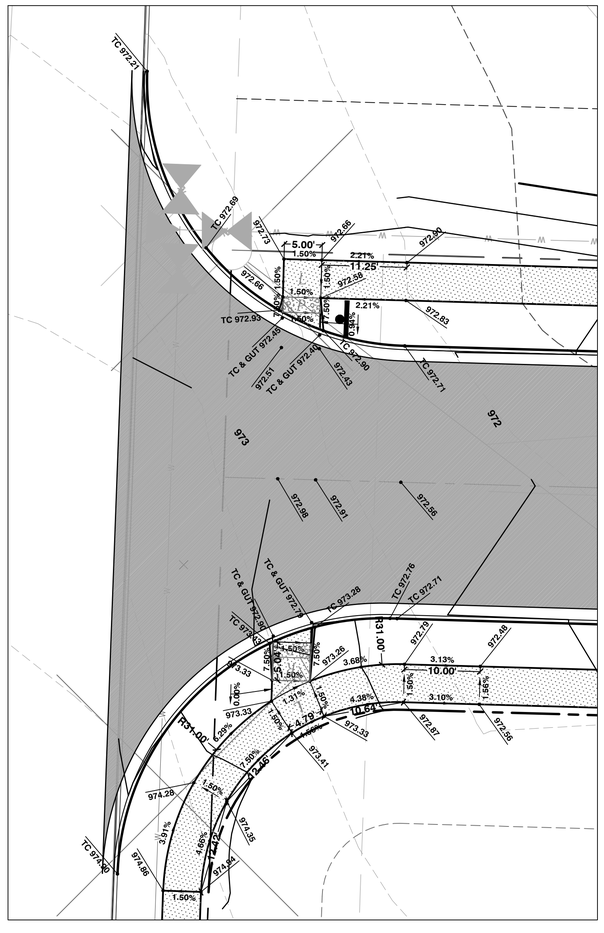
REVISIONS
NO. DATE / DESCRIPTION

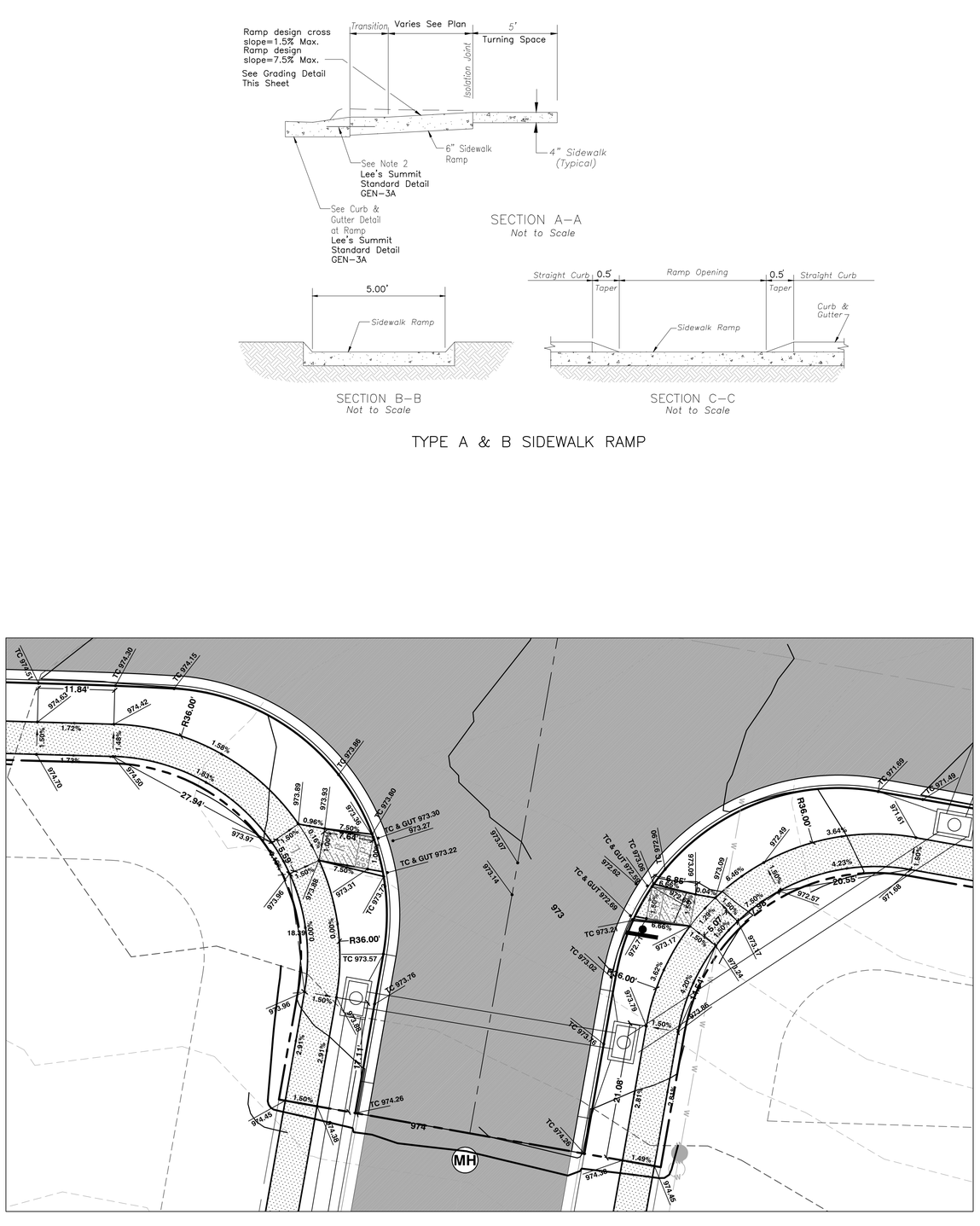
DRAWN BY: JV
CHECKED BY: TLW
PROJECT #: 21-1883
ISSUE DATE: 03/31/2022
ISSUED FOR: PERMIT

STREET SIGNAGE PLAN

C-120

TYPE A & B SIDEWALK RAMP





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DEVELOPER/OWNER
DAVID WARD
NORTH OAK SAFETY STORAGE, LLC
1120 NW EAGLE RIDGE BLVD.
GRAIN VALLEY, MO 64029
(816) 229-8115

LAKEWOOD BUSINESS CENTER OF LEE'S SUMMIT
2710 NE HAGEN ROAD
LEE'S SUMMIT, MO 64064
JACKSON COUNTY

STATE OF MISSOURI
TOBY L. WILLIAMS
NUMBER PE-2019038948
PROFESSIONAL ENGINEER
03-31-2022

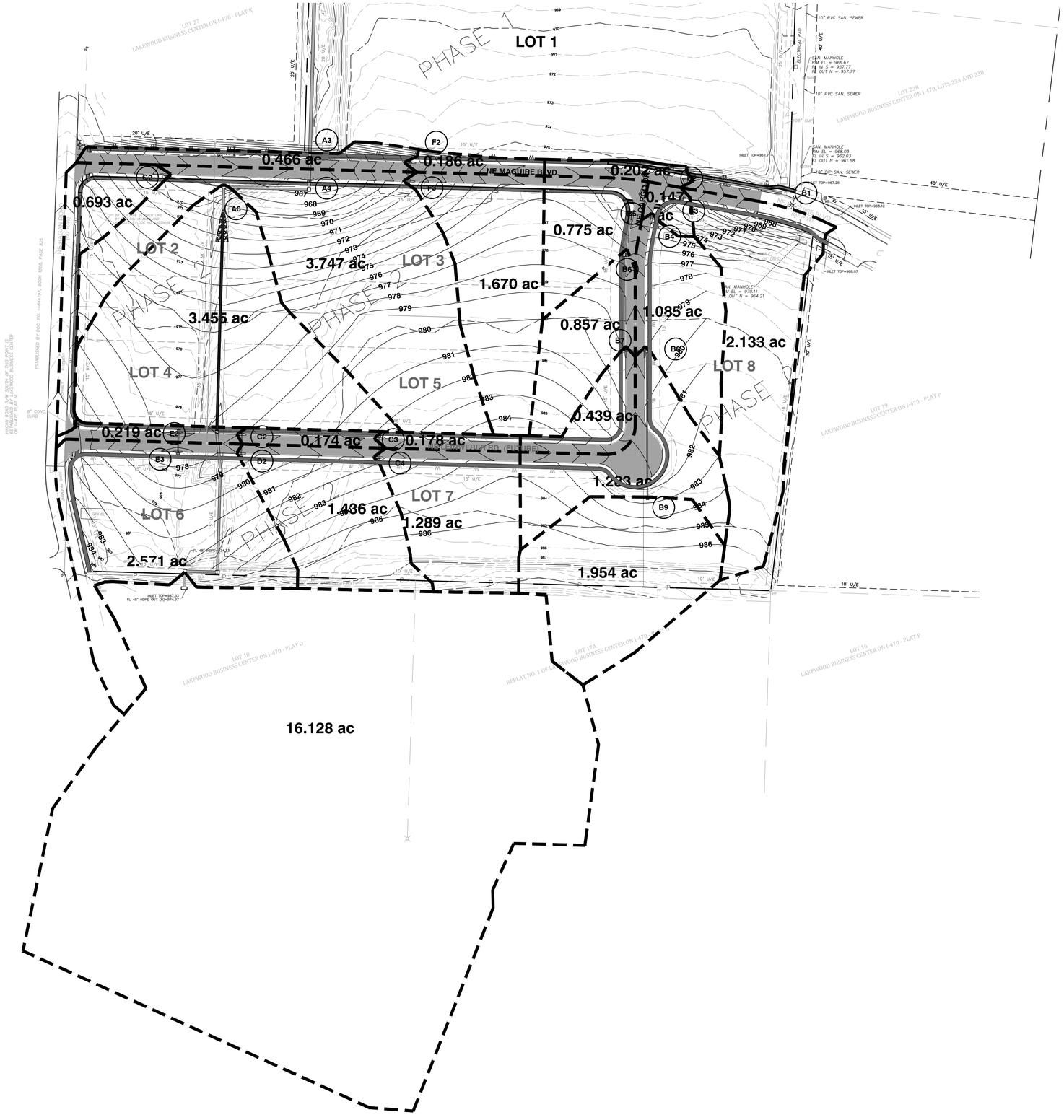
Toby L. Williams, PE
PE-2019038948 (MISSOURI #)

REVISIONS
NO. DATE / DESCRIPTION

DRAWN BY: JV
CHECKED BY: TLW
PROJECT #: 21-1883
ISSUE DATE: 03/31/2022
ISSUED FOR: PERMIT

INTERSECTION DETAILS & ADA RAMP PLAN

C-130



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LAKEWOOD BUSINESS CENTER ON I-470 - PLAT S
2710 NE HAGEN ROAD
LEE'S SUMMIT, MO 64064
JACKSON COUNTY

STATE OF MISSOURI
TOBY L. WILLIAMS
NUMBER PE-2019038948
PROFESSIONAL ENGINEER
03-31-2022

Toby L. Williams, PE
PE-2019038948 (MISSOURI #)

REVISIONS
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DRAWN BY: JV
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PROJECT #: 21-1883
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ISSUED FOR:
PERMIT

OVERALL DRAINAGE AREA MAP

C-201

PROPERTY LINE (TYP.)

PHASE 1

LOT 1

PHASE 2 FUTURE SANITARY SEWER

PROPERTY LINE (TYP.)

NE MAGUIRE BLVD.

PHASE 1 BOUNDARY

NE CARGO DR.

LOT 2

LOT 3

PROPERTY LINE (TYP.)

PHASE 2

LOT 4

LOT 5

PHASE 2 FUTURE STORM (TYP.)

PHASE 2 FUTURE 5' SIDEWALK

PHASE 2 FUTURE STREETS

NE LEINWEBER RD. (FUTURE)

PHASE 2 FUTURE SANITARY SEWER

LOT 6

LOT 7

LOT 8

PHASE 2 FUTURE WATER LINE 2 EXTENSION

PROPERTY LINE (TYP.)

NE HAGEN ROAD (60' R/W)

NORTH

70 35 0 70

SCALE IN FEET

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NO. DATE / DESCRIPTION

DRAWN BY: JV
CHECKED BY: TLW
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ISSUE DATE: 03/31/2022
ISSUED FOR:
PERMIT

OVERALL STORM SEWER LAYOUT PLAN

C-211

Line No.	Line ID	Drng Area (ac)	Incr CxA	Tc (min)	Pipe Travel (min)	i Sys (in/hr)	Incr Q (cfs)	Line Length (ft)	Line Size (in)	Line Slope (%)	Capac Full (cfs)	Vel Up (ft/s)	Vel Dn (ft/s)	Hw (ft)	Rim-Hw (ft)	Invert Up (ft)	Invert Dn (ft)	Sf Ave (%)	J-Loss Coeff	Energy Loss (ft)	HGL Up (ft)	HGL Dn (ft)	Total Runoff (cfs)
27	B9-B8	1.95	1.29	5.0	0.82	7.35	9.46	265.064	18	1.13	12.10	5.36	5.36	1.91	2.77	978.00	975.00	n/a	1.00	1.623	979.68	977.84	9.46
26	B8-B7	1.28	0.84	5.8	0.14	7.11	6.21	39.012	24	1.03	24.81	8.28	5.04	3.34	1.21	974.50	974.10	n/a	1.50	0.848	975.63 j	975.93	15.15
25	B7-B6	0.44	0.29	6.0	0.54	7.07	2.14	170.680	24	1.90	33.81	6.82	5.45	2.63	3.12	973.30	970.05	n/a	1.50	2.796	974.79 j	972.67	17.12
24	B6-B5	0.86	0.57	6.5	0.19	6.92	4.17	70.296	24	2.06	35.19	7.55	6.58	3.12	3.77	969.55	968.10	n/a	0.50	1.720	971.18 j	970.27	20.68
23	B5-B4	0.78	0.51	6.7	0.09	6.87	3.79	39.003	24	2.05	35.09	7.66	7.66	3.37	3.55	966.90	966.10	n/a	1.50	-0.114	969.85	969.47	24.06
22	B4-B3	1.09	0.72	6.8	0.20	6.84	5.29	65.554	30	1.22	49.08	5.89	5.89	3.87	4.31	965.60	964.80	0.423	0.97	0.277	968.95	968.67	28.90
21	B3-B2	0.15	0.10	7.0	0.12	6.79	0.73	39.003	30	1.54	55.10	5.98	5.98	4.36	2.50	964.30	963.70	0.437	1.23	0.170	967.97	967.80	29.35
20	B2-EX	0.20	0.13	7.1	0.49	6.76	0.97	168.435	30	1.01	44.64	9.76	6.29	4.60	3.38	963.20	961.50	n/a	1.50	2.473	964.70 j	963.85	30.12
19	G2-A6	0.69	0.46	5.0	0.62	7.35	3.35	101.851	15	1.00	7.00	5.64	5.64	1.59	2.44	962.40	961.38	n/a	1.00	1.507	963.01	961.99	3.35
18	F3-F2	1.67	1.10	5.0	0.14	7.35	8.10	39.003	18	2.54	18.13	4.75	4.59	1.61	3.68	965.09	964.10	n/a	1.00	0.051	966.48	966.32	8.10
17	F2-A3	0.19	0.13	5.1	0.58	7.31	0.92	175.976	18	2.55	18.17	10.24	10.24	4.62	4.07	961.70	957.21	n/a	1.50	6.731	962.44	957.95	8.97
16	E3-E2	1.75	1.16	5.0	0.14	7.35	8.49	39.000	18	1.00	11.38	4.81	4.81	2.31	2.38	972.71	972.32	0.557	1.00	0.217	974.67	974.45	8.49
15	E2-A7	0.22	0.15	5.1	0.20	7.31	1.07	64.856	18	1.00	11.39	7.21	7.21	2.63	2.95	971.82	971.17	n/a	1.50	1.421	972.87	972.22	9.51
14	D2-C2	1.44	0.95	5.0	0.11	7.35	6.99	39.000	15	1.00	7.00	6.50	6.50	2.22	2.87	973.55	973.16	n/a	1.00	0.930	974.57	974.18	6.99
13	C4-C3	1.29	0.85	5.0	0.18	7.35	6.26	39.000	18	1.00	11.38	6.59	3.96	2.15	4.86	974.89	974.50	n/a	1.00	0.611	975.68 j	975.76	6.26
12	C3-C2	0.18	0.12	5.2	1.03	7.30	0.87	246.228	18	0.75	9.83	5.48	4.01	1.73	6.14	974.03	972.19	n/a	1.50	1.801	975.06 j	973.71	7.08
11	C2-A7	0.17	0.11	6.2	0.15	7.00	0.83	40.644	24	1.01	24.61	8.11	8.11	3.21	4.93	970.50	970.09	n/a	1.50	1.502	971.59	971.18	14.22
10	EX-A10	16.13	10.65	10.0	0.09	6.08	64.69	28.014	48	0.54	113.86	5.15	5.15	6.33	6.23	974.97	974.82	0.173	1.00	0.048	980.89	980.84	64.69
9	A10-A9	0.00	0.00	10.1	0.18	6.06	0.00	53.845	48	1.00	155.84	11.81	5.36	6.54	1.54	974.30	973.76	n/a	1.00	1.260	976.09	977.41	64.48
8	A9-A8	0.00	0.00	10.3	0.59	6.02	0.00	180.523	48	1.38	182.76	13.25	6.44	7.92	6.06	969.49	967.00	n/a	1.00	4.724	971.13	969.96	64.10
7	A8-A7	0.82	0.54	10.9	0.21	5.90	3.98	65.255	48	1.00	155.31	5.25	5.25	5.63	8.85	964.30	963.65	0.180	0.50	0.117	969.72	969.60	66.01
6	A7-A6	0.00	0.00	11.1	1.12	5.86	0.00	443.237	48	1.00	155.93	12.67	6.79	7.55	8.45	962.05	957.60	n/a	1.00	5.570	964.16	961.53	85.07
5	A6-A5	3.46	2.28	12.2	0.34	5.65	16.79	150.097	48	1.00	155.57	7.76	7.76	4.43	6.37	957.10	955.60	n/a	2.20	-0.242	961.43	960.84	97.46
4	A5-A4	2.59	1.71	12.5	0.03	5.59	12.57	10.678	54	0.56	159.70	10.73	10.73	6.00	5.75	954.84	954.78	n/a	1.47	1.590	957.52	957.46	105.94
3	A4-A3	1.16	0.77	12.6	0.10	5.58	5.63	39.000	54	1.00	213.05	7.18	6.92	4.16	10.04	951.81	951.42	n/a	0.50	-0.698	955.97	955.92	110.11
2	A3-A2	0.47	0.31	12.7	1.20	5.56	2.28	399.677	60	1.00	282.29	9.24	6.03	5.00	10.09	950.92	946.92	n/a	1.50	3.067	954.02	952.29	118.31
1	A2-A1	0.00	0.00	13.9	0.08	5.36	0.00	23.508	60	0.51	201.60	10.58	6.74	5.87	3.12	946.42	946.30	n/a	1.00	0.231	949.11	950.32	113.96

NOTES: Intensity = 175.00 / (Inlet time + 18.80) ^ 1.00 -- Return period = 10 Yrs. ; j Inlet control; ** Critical depth

Storm Sewers

10-YR CALCS.

100-YR CALCS.

Line No.	Line ID	Drng Area (ac)	Incr CxA	Tc (min)	Pipe Travel (min)	i Sys (in/hr)	Incr Q (cfs)	Line Length (ft)	Line Size (in)	Line Slope (%)	Capac Full (cfs)	Vel Up (ft/s)	Vel Dn (ft/s)	Hw (ft)	Rim-Hw (ft)	Invert Up (ft)	Invert Dn (ft)	Sf Ave (%)	J-Loss Coeff	Energy Loss (ft)	HGL Up (ft)	HGL Dn (ft)	Total Runoff (cfs)
27	B9-B8	1.95	1.29	5.0	0.59	10.32	13.29	265.064	18	1.13	12.10	7.52	7.52	3.04	1.64	978.00	975.00	n/a	1.00	2.763	981.01	977.39	13.29
26	B8-B7	1.28	0.84	5.6	0.10	10.08	8.72	39.012	24	1.03	24.81	6.84	6.84	2.89	1.66	974.50	974.10	n/a	1.50	-0.060	977.03	976.73	21.50
25	B7-B6	0.44	0.29	5.7	0.38	10.04	3.00	170.680	24	1.90	33.81	7.74	7.75	3.43	2.32	973.30	970.05	n/a	1.50	1.655	975.82	974.14	24.33
24	B6-B5	0.86	0.57	6.1	0.13	9.90	5.86	70.296	24	2.06	35.19	9.42	9.42	4.59	2.30	969.55	968.10	n/a	0.50	-0.022	973.81	972.78	29.59
23	B5-B4	0.78	0.51	6.2	0.06	9.85	5.31	39.003	24	2.05	35.09	10.98	10.99	5.88	1.04	966.90	966.10	n/a	1.50	-1.091	972.77	971.99	34.51
22	B4-B3	1.09	0.72	6.3	0.14	9.82	7.43	65.554	30	1.22	49.08	8.45	8.45	6.39	1.79	965.60	964.80	0.872	0.97	0.572	970.92	970.35	41.49
21	B3-B2	0.15	0.10	6.4	0.08	9.77	1.02	39.003	30	1.54	55.10	8.60	8.61	6.01	0.85	964.30	963.70	0.904	1.23	0.353	968.89	968.54	42.24
20	B2-EX	0.20	0.13	6.5	0.35	9.74	1.36	168.435	30	1.01	44.64	10.36	9.06	5.34	2.64	963.20	961.50	n/a	1.50	3.017	965.19	963.85	43.39
19	G2-A6	0.69	0.46	5.0	0.44	10.32	4.70	101.851	15	1.00	7.00	3.83	3.83	2.48	1.55	962.40	961.38	0.452	1.00	0.460	964.65	964.19	4.70
18	F3-F2	1.67	1.10	5.0	0.10	10.32	11.38	39.003	18	2.54	18.13	6.44	6.44	3.09	2.20	965.09	964.10	1.000	1.00	0.390	967.54	967.15	11.38
17	F2-A3	0.19	0.13	5.1	0.41	10.28	1.29	175.976	18	2.55	18.17	11.11	11.11	5.45	3.24	961.70	957.21	n/a	1.50	7.101	962.62	958.13	12.52
16	E3-E2	1.75	1.16	5.0	0.10	10.32	11.92	39.000	18	1.00	11.38	6.75	6.75	3.31	1.38	972.71	972.32	1.099	1.00	0.428	975.31	974.89	11.92
15	E2-A7	0.22	0.15	5.1	0.14	10.28	1.50	64.856	18	1.00	11.39	7.57	7.69	3.07	2.52	971.82	971.17	n/a	1.50	1.364	973.47	972.60	13.37
14	D2-C2	1.44	0.95	5.0	0.08	10.32	9.81	39.000	15	1.00	7.00	7.99	8.06	3.21	1.88	973.55	973.16	n/a	1.00	1.376	975.11	974.37	9.81
13	C4-C3	1.29	0.85	5.0	0.13	10.32	8.79	39.000	18	1.00	11.38	4.97	4.97	2.75	4.26	974.89	974.50	0.597	1.00	0.233	977.26	977.03	8.79
12	C3-C2	0.18	0.12	5.1	0.73	10.27	1.23	246.228	18	0.75	9.83	5.64	5.64	2.89	4.98	974.03	972.19	0.767	1.50	1.889	976.17	974.29	9.96
11	C2-A7	0.17	0.11	5.9	0.11	9.98	1.16	40.644	24	1.01	24.61	8.75	8.75	3.79	4.35	970.50	970.09	n/a	1.50	1.623	971.88	971.47	20.28
10	EX-A10	16.13	10.65	10.0	0.06	8.59	91.45	28.014	48	0.54	113.86	7.28	7.28	5.97	6.59	974.97	974.82	0.345	1.00	0.097	980.11	980.02	91.45
9	A10-A9	0.00	0.00	10.1	0.12	8.57	0.00	53.845	48	1.00	155.84	7.26	7.26	5.71	2.37	974.30	973.76	0.344	1.00	0.185	979.20	979.01	91.26
8	A9-A8	0.00	0.00	10.2	0.42	8.54	0.00	180.523	48	1.38	182.76	14.52	14.52	9.52	4.46	969.49	967.00	n/a	1.00	6.739	971.48	968.99	90.88
7	A8-A7	0.82	0.54	10.6	0.15	8.42	5.59	65.255	48	1.00	155.31	7.75	7.50	4.28	10.20	964.30	963.65	n/a	0.50	-0.130	968.00	967.84	94.18
6	A7-A6	0.00	0.00	10.8	0.79	8.38	0.00	443.237	48	1.00	155.93	9.68	9.68	5.79	10.21	962.05	957.60	n/a	1.00	2.194	966.90	964.19	121.65
5	A6-A5	3.46	2.28	11.5	0.24	8.17	23.57	150.097	48	1.00	155.57	11.22	11.22	7.09	3.71	957.10	955.60	n/a	2.20	0.329	963.13	961.90	140.95
4	A5-A4	2.59	1.71	11.8	0.02	8.10	17.65	10.678	54	0.56	159.70	11.44	11.44	7.06	4.69	954.84	954.78	n/a	1.47	1.543	958.39	958.33	153.72
3	A4-A3	1.16	0.77	11.8	0.07	8.10	7.90	39.000	54	1.00	213.05	10.05	10.05	6.33	7.87	951.81	951.42	n/a	0.50	-1.001	957.79	957.57	159.82
2	A3-A2	0.47	0.31	11.9	0.85	8.08	3.20	399.677	60	1.00	282.29	10.87	8.76	6.65	8.44	950.92	946.92	n/a	1.50	2.892	954.67	953.49	171.89
1	A2-A1	0.00	0.00	12.7	0.05	7.87	0.00	23.508	60	0.51	201.60	11.48	9.90	7.07	1.92	946.42	946.30	n/a	1.00	1.121	949.90	950.32	167.42

NOTES: Intensity = 286.00 / (Inlet time + 19.80) ^ 1.00 -- Return period = 100 Yrs. ; j Inlet control; ** Critical depth

Storm Sewers

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Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

DEVELOPER/OWNER
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NORTH OAK SAFETY STORAGE, LLC
1120 NW EAGLE RIDGE BLVD.
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LAKEWOOD BUSINESS CENTER ON I-470 - PLAT S
2710 NE HAGEN ROAD
LEE'S SUMMIT, MO 64064
JACKSON COUNTY

STATE OF MISSOURI
TOBY L. WILLIAMS
NUMBER PE-2019038948
03-31-2022
PROFESSIONAL ENGINEER

Toby L. Williams, PE
PE-2019038948 (MISSOURI #)

REVISIONS
NO. DATE / DESCRIPTION

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PROJECT #: 21-1883
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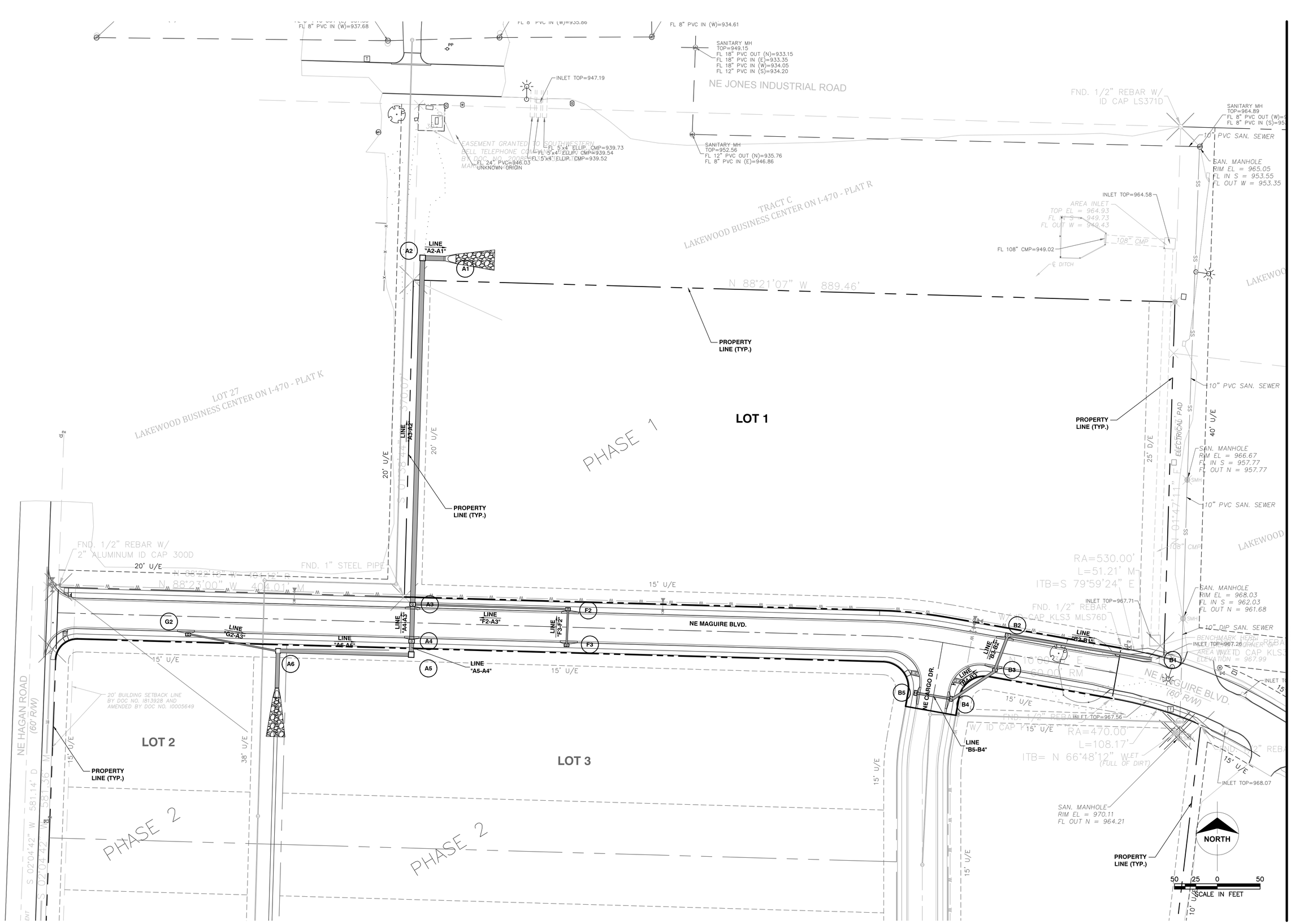
OVERALL STORM CALCULATIONS

C-212



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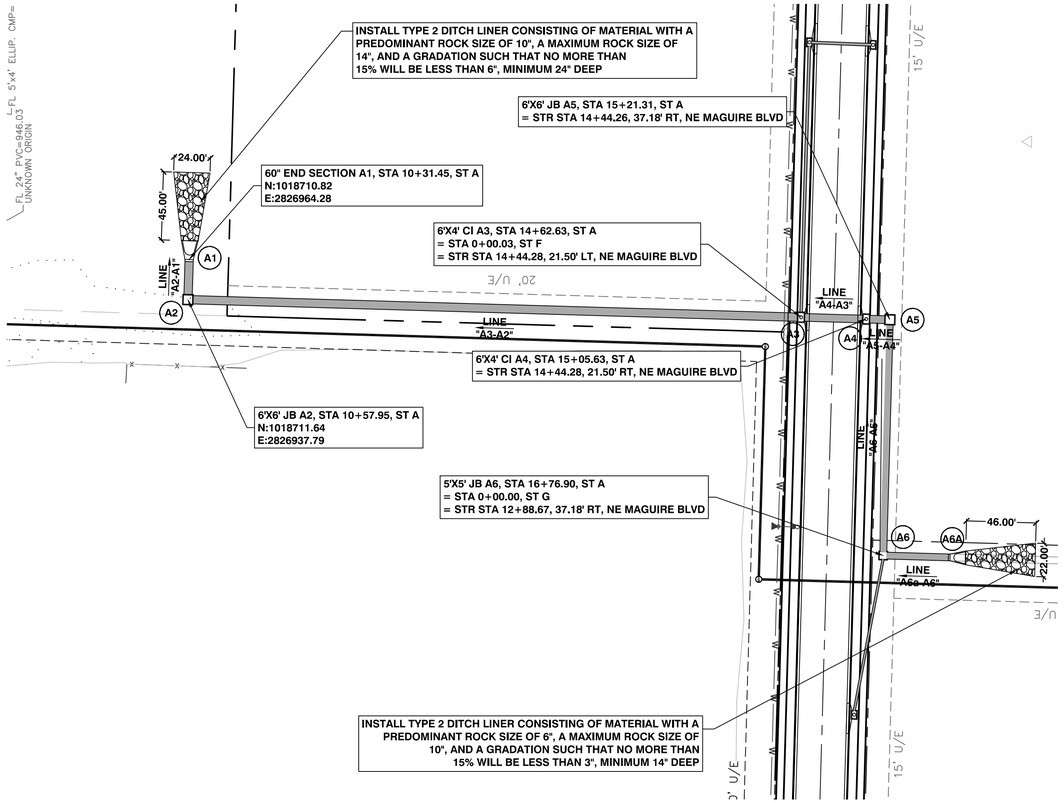
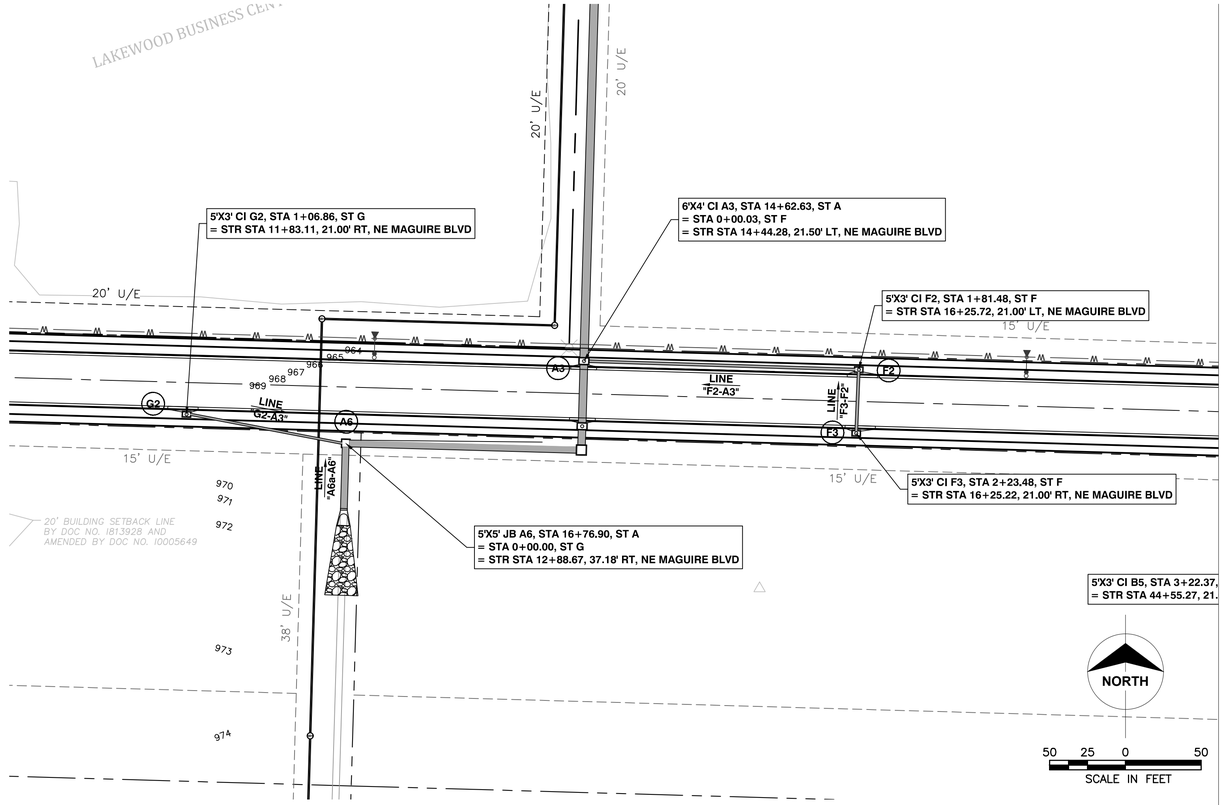
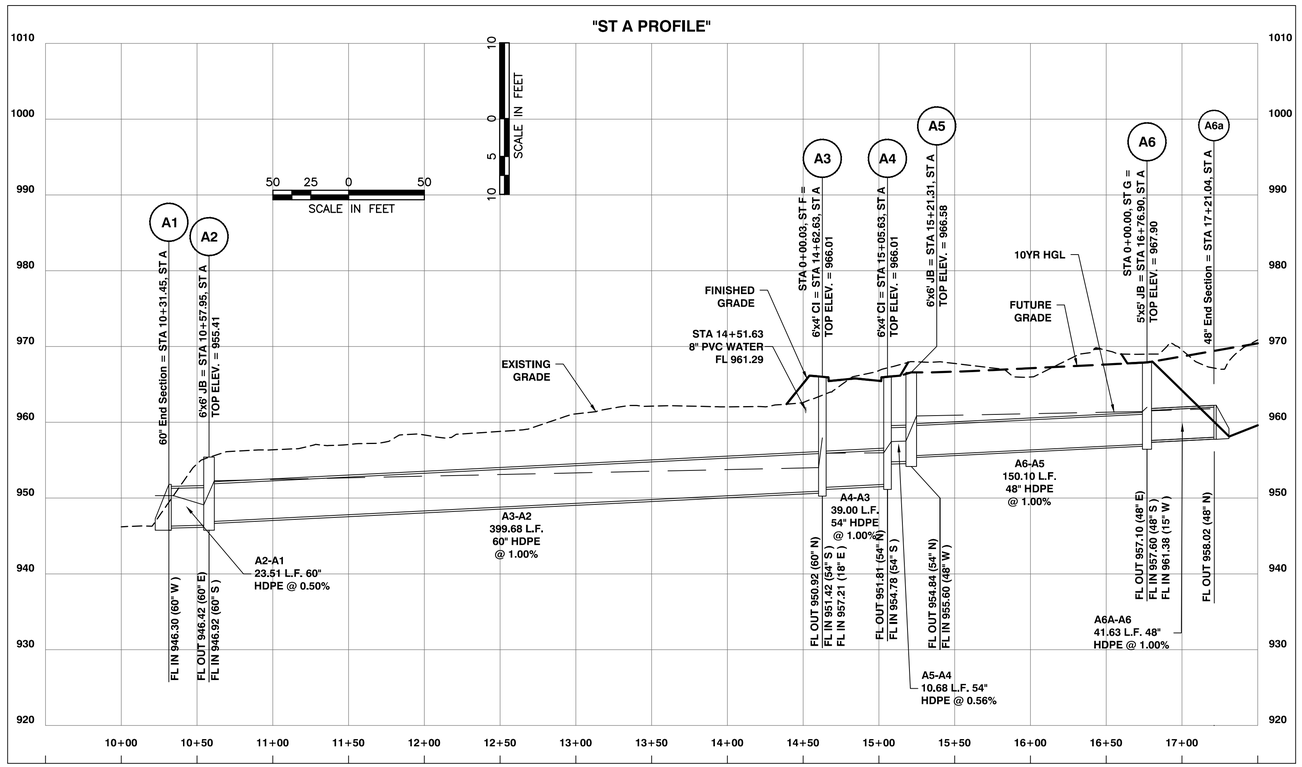
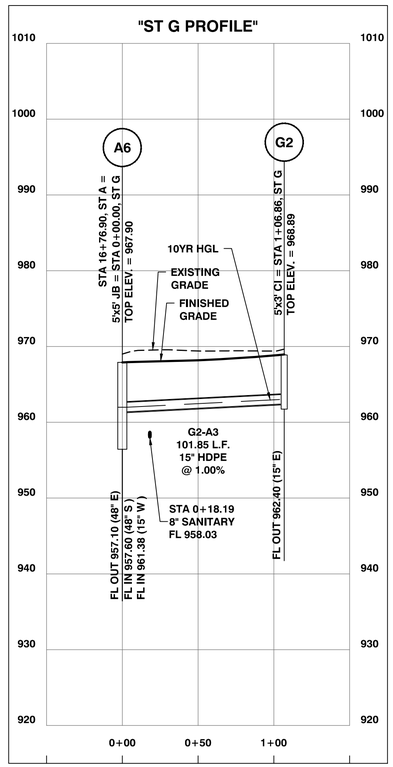
PHASE 1 STORM SEWER LAYOUT PLAN

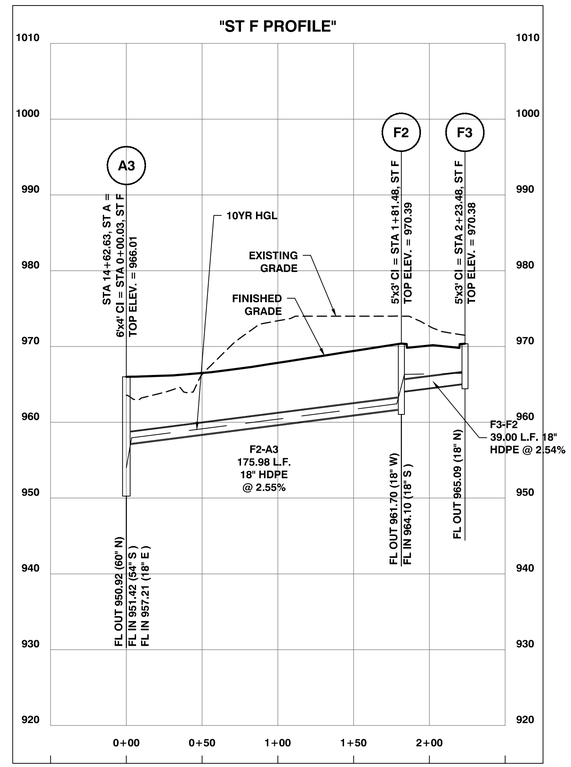
C-221











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03-31-2022

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PHASE 1 STORM SEWER PLAN & PROFILE

C-222

50 25 0 50
SCALE IN FEET

10 0 5 10
SCALE IN FEET

50 25 0 50
SCALE IN FEET

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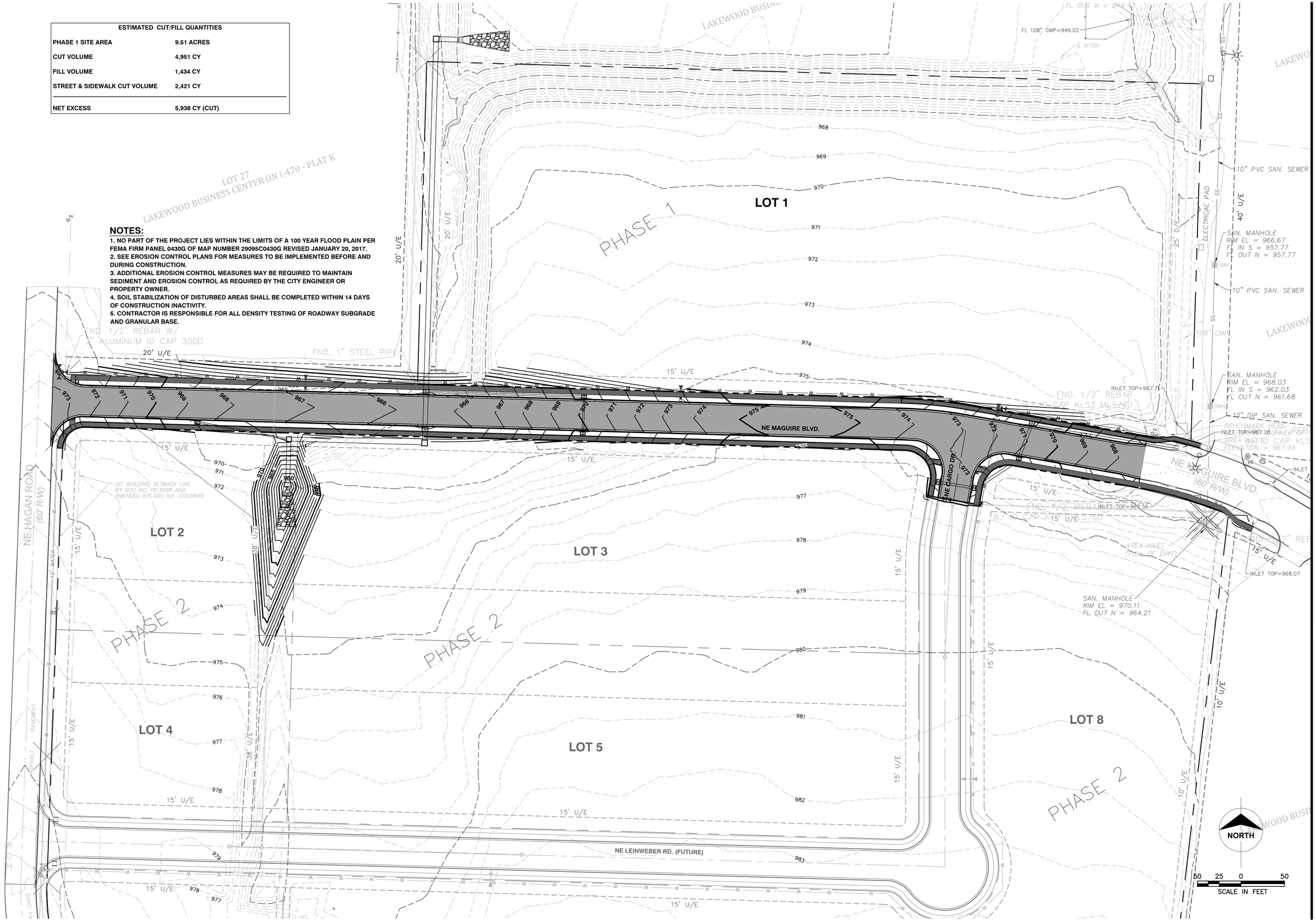
PHASE 1 STORM SEWER PLAN & PROFILE CONT'D

C-223

ESTIMATED CUT/FILL QUANTITIES	
PHASE 1 SITE AREA	9.51 ACRES
CUT VOLUME	4,951 CY
FILL VOLUME	1,434 CY
STREET & SIDEWALK CUT VOLUME	2,421 CY
NET EXCESS	5,938 CY (CUT)

NOTES:

1. NO PART OF THE PROJECT LIES WITHIN THE LIMITS OF A 100 YEAR FLOOD PLAIN PER FEMA FIRM PANEL 0430G OF MAP NUMBER 29095C0430G REVISED JANUARY 20, 2017.
2. SEE EROSION CONTROL PLANS FOR MEASURES TO BE IMPLEMENTED BEFORE AND DURING CONSTRUCTION.
3. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED TO MAINTAIN SEDIMENT AND EROSION CONTROL AS REQUIRED BY THE CITY ENGINEER OR PROPERTY OWNER.
4. SOIL STABILIZATION OF DISTURBED AREAS SHALL BE COMPLETED WITHIN 14 DAYS OF CONSTRUCTION INACTIVITY.
5. CONTRACTOR IS RESPONSIBLE FOR ALL DENSITY TESTING OF ROADWAY SUBGRADE AND GRANULAR BASE.



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PHASE 1 GRADING PLAN

C-311