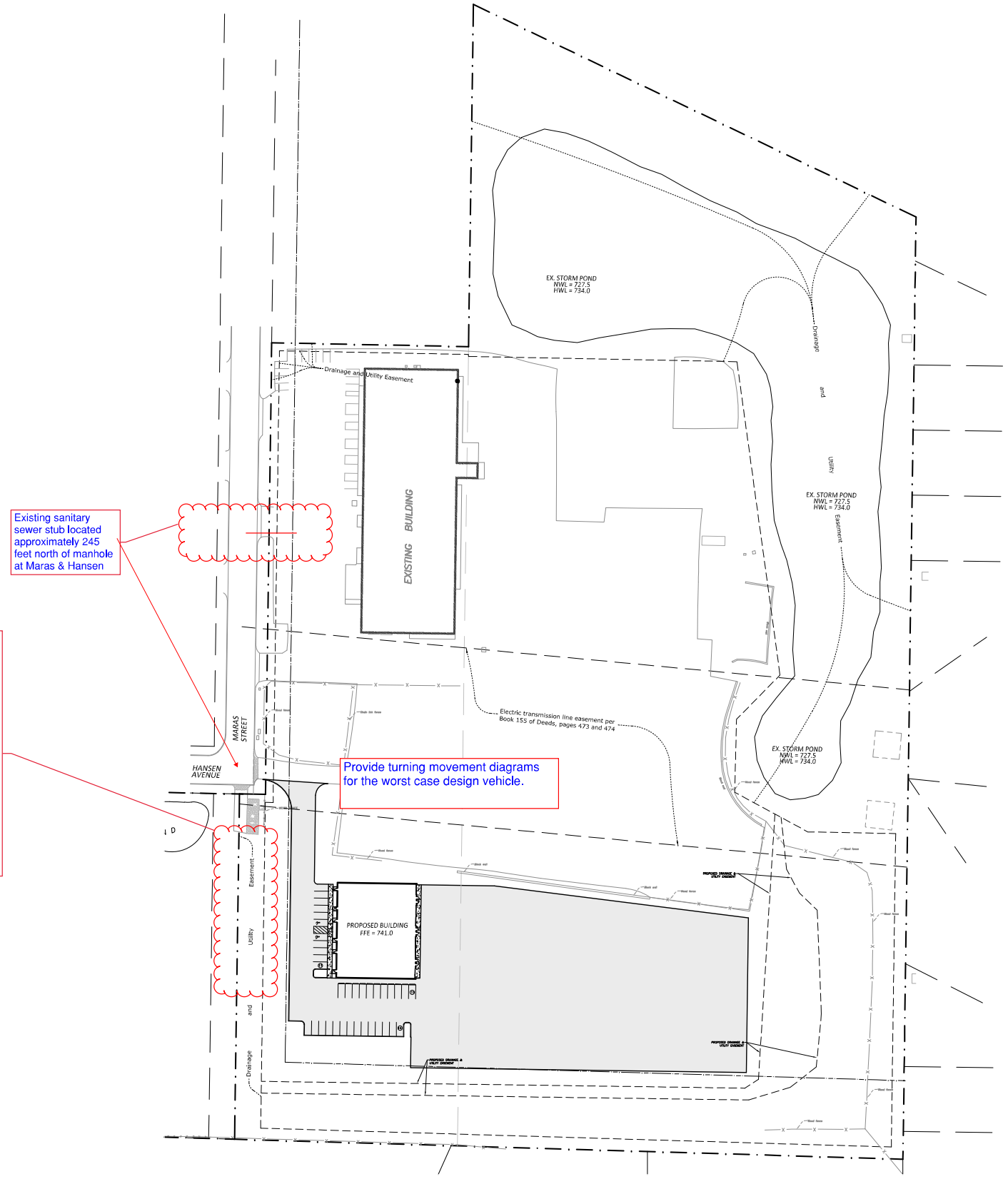
MARAS STREET 1ST ADDITION

1555 MARAS STREET
SHAKOPEE, MN 55379



If sanitary sewer service is installed as shown on sheet C5 it would be a public trunk and would require the following:

1. Line would have to be up sized to 12-inches from MH 101 to the north.

2. Execution of a Developer's Agreement, which needs to include provisions for a letter of credit or cash security equal to 125 percent of the estimated total cost of the improvements, plus 100 percent of the estimated costs of city inspection and administration.

3. Escrow submitted in the amount of 50% the cost to extend an 8-inch sanitary sewer pipe to the southern extents of the property.

4. Submit a detailed contractor's bid for all public improvements associated with this development.

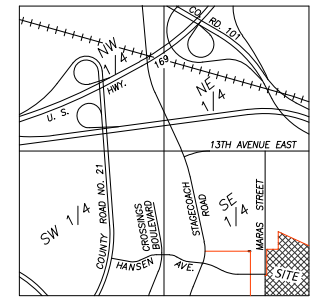
5. A temporary Construction easement would be needed if construction limits extend to adjacent property

N

PROJECT CONTACTS:

Nick Adam, P.E.
Civil Engineer
651-337-6729
nadam@rehder.com

John Mesenbrink
General Contractor
612-968-3800
jemmbc@mesenbrinkconstruction.com



Vicinity Map
Section 12, Township 115, Range 22
No Scale

SHEET INDEX

TITLE	SHEET NO.
COVER SHEET	C0
EXISTING CONDITIONS SURVEY	
SITE DIMENSION PLAN	C1
GRADING & DRAINAGE PLAN	C2 – C4
UTILITY PLAN	C5 – C6
EROSION CONTROL PLAN	C7 – C8
TURF ESTABLISHMENT PLAN	C9 – C10
DETAILS	C11
CITY DETAILS	C12
MNDOT STANDARD DETAILS PLATES	C13 – C16
TREE PRESERVATION PLAN	C17
SPECIFICATIONS	C18
SWPPP (PROVIDED AT A LATER DATE)	C19
LANDSCAPE PLAN	L1

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Eagan, MN 55122
Telephone: 651-452-5051
www.rehder.com

PROJECT NO.: 231-1321.168 DRAWING FILE: 1321168.DWG

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Name Nicholas P. Adam Date
Reg. No. 43856

Issued

ADDRESS CITY COMMENTS	1-25-24
CITY SUBMITTAL	2-19-24

COVER SHEET
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C0

MARAS STREET

HANSEN AVENUE

Electric transmission line easement per Book 155 of Deeds, pages 473 and 474

EX. STORM POND
NWL = 727.5
HWL = 734.0

Wood fence

Chain link fence

Block wall

REMOVE WOOD FENCE

WOOD FENCE

16"Willow

27"Cottonwood

26"Willow

30.00'

Utility Easement

Drainage and Utility Easement

6.00'

30.00'

18.00'

5.00'

9.00' TYP.

9.00'

9.00'

ACCESSIBLE PARKING SIGN

PROPOSED BUILDING
FFE = 741.0

"NO PARKING" SIGN

ACCESSIBLE PARKING SIGN

PARKING CURB STOP, TYP.

5.00'

233.25'

417.29'

197.07'

7.00'

18.00'

30.00'

18.00'

9.00' TYP.

9.00' TYP.

3° TAPER C&G

PROPOSED DRAINAGE & UTILITY EASEMENT

PROPOSED DRAINAGE & UTILITY EASEMENT

PROPOSED DRAINAGE & UTILITY EASEMENT

N

0 15 30 60 90
Scale in Feet

GOPHER STATE ONE CALL

CALL 48 HOURS BEFORE YOU DIG
TWIN CITY AREA 651-454-0002
MN. TOLL FREE 1-800-252-1166

PARKING STALLS REQUIRED

		STALLS
OFFICE SPACE	120 SQ. FT. X 1 STALL/250 SQ. FT. =	1
VEHICLE REPAIR	4 STALLS + 1 STALL/SERVICE BAY =	5
	SUB TOTAL =	6
TOTAL	6 STALLS X 6 UNITS =	36

PARKING STALLS PROVIDED

STANDARD STALLS	ACCESSIBLE STALLS	TOTAL
34	2	36

SITE SUMMARY

SITE AREA = 23.48 ACRES
DISTURBED AREA = 6.5 ACRES
EXISTING IMPERVIOUS AREA = 8.60 ACRES (36.6%)
POST CONSTRUCTION IMPERVIOUS AREA = 11.54 ACRES (49.1%)

LEGEND

- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- BUILDING/PARKING SETBACK LINE
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS

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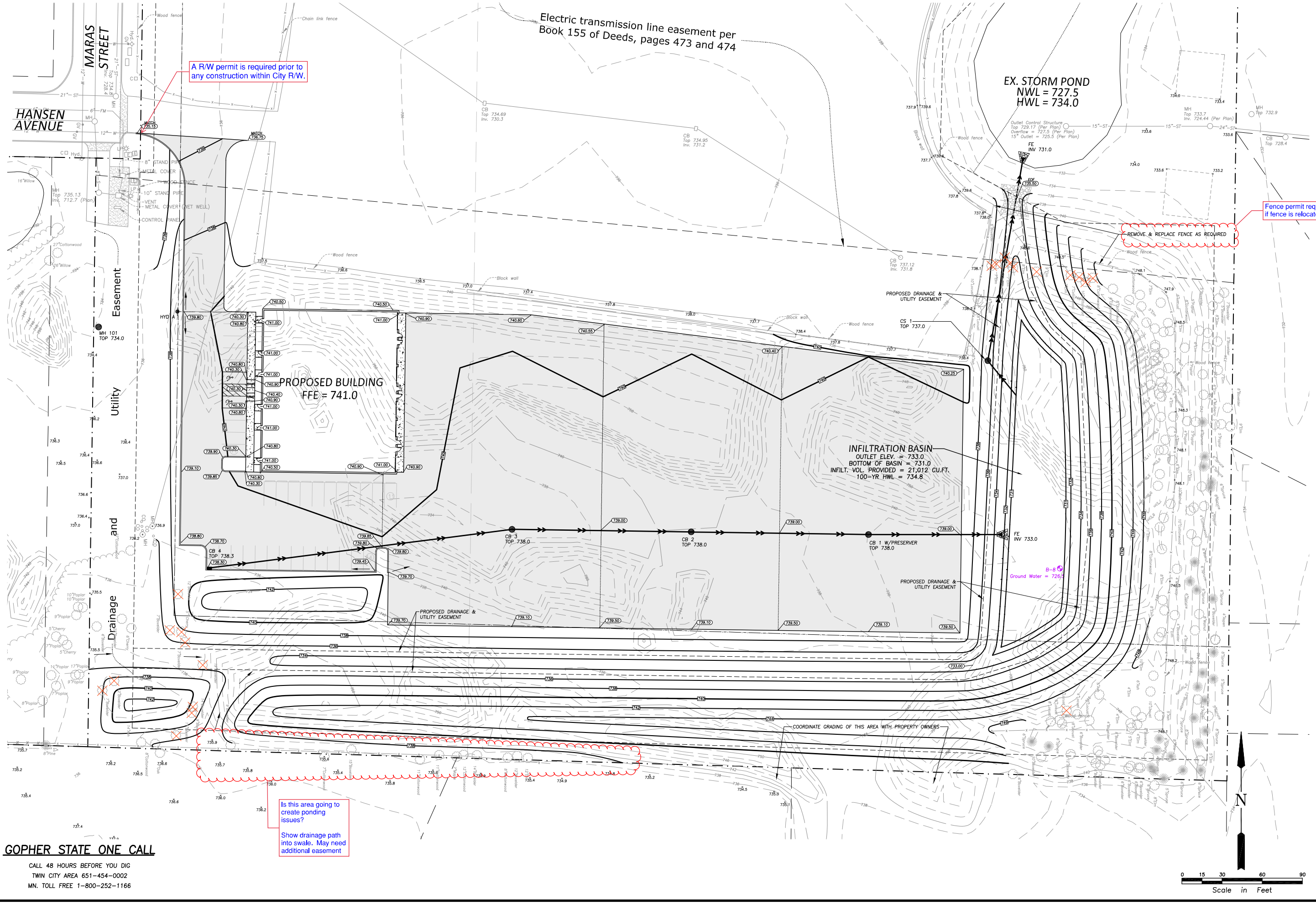
SITE DIMENSION PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER

C1



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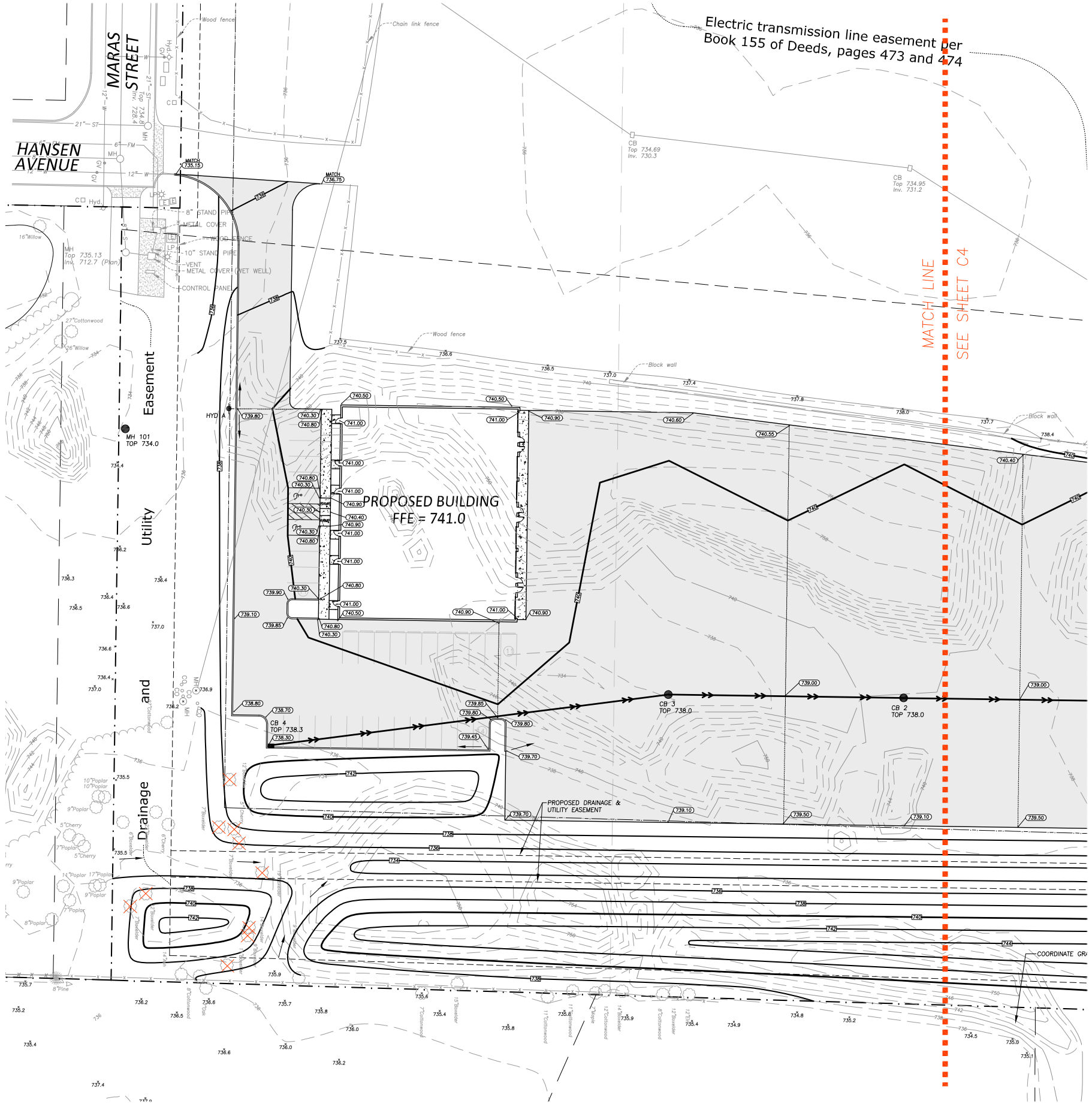
CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

OVERALL GRADING & DRAINAGE PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C2



GOPHER STATE ONE CALL

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TWIN CITY AREA 651-454-0002
MN. TOLL FREE 1-800-252-1166

GRADING NOTES

1 – All elevations shown are to final surfaces.
2 – Contractor is responsible for obtaining a National Pollutant Discharge Elimination System (NPDES) General Storm Water Permit for Construction Activity before construction begins.
3 – Contractor shall keep heavy equipment off the infiltration basin to prevent the infiltration basin from being compacted.
4 – All disturbed green space shall have a minimum of 6 inches to topsoil when grading is complete.

LEGEND

- PROPOSED MANHOLE/CATCH BASIN
- PROPOSED CATCH BASIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED FLARED END
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED STORM SEWER
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS
- PROPOSED CONTOUR
- PROPOSED ELEVATION
- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- BUILDING/PARKING SETBACK LINE
- DRAINAGE ARROW
- ST — EXISTING STORM SEWER
- W — EXISTING WATERMAIN
- S — EXISTING SANITARY SEWER
- FM — EXISTING SANITARY FORCE MAIN
- 980 — EXISTING CONTOUR
- x 995.50 EXISTING ELEVATION

N

0 15 30 60 90
Scale in Feet

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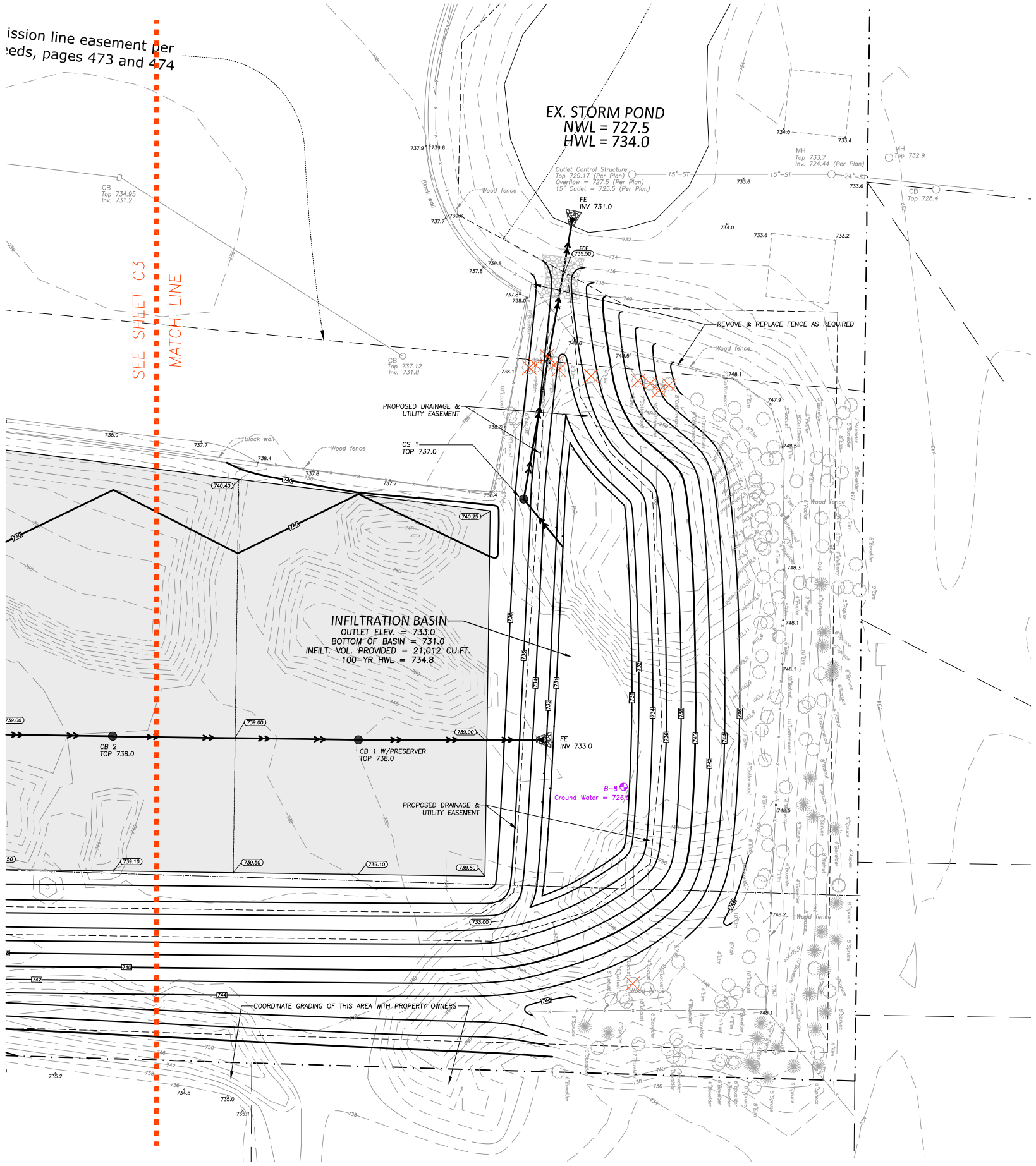
ADDRESS CITY COMMENTS
1-25-24
2-19-24

GRADING & DRAINAGE PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C3



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- PROPOSED CATCH BASIN
- PROPOSED HYDRANT
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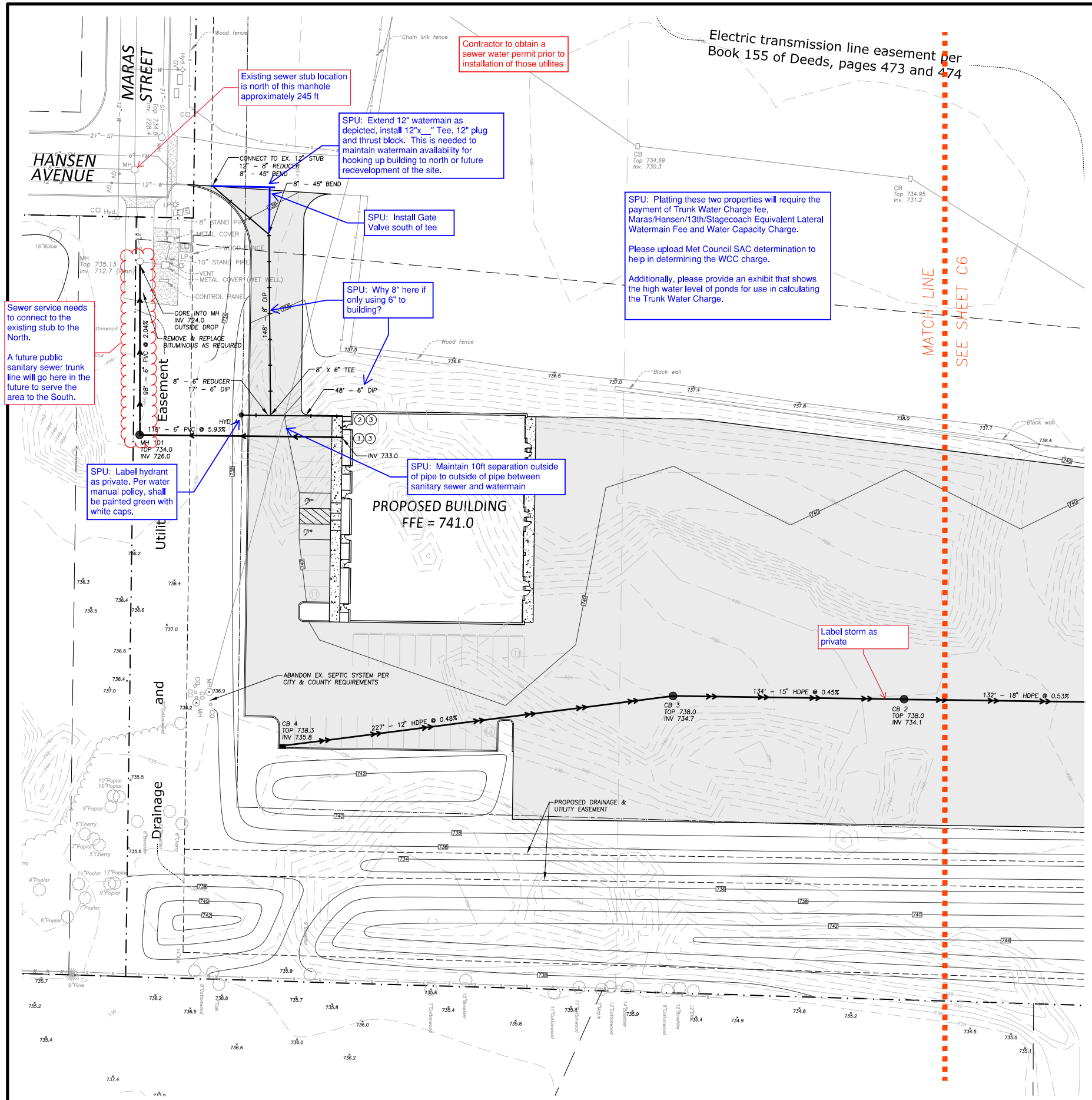
ADDRESS CITY COMMENTS	2-19-24

GRADING & DRAINAGE PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C4



GOPHER STATE ONE CALL

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MN. TOLL FREE 1-800-252-1166

UTILITY NOTES

1. All sewer services to extend to a point 5' from proposed building.
2. Bring water service into proposed building and cap at the floor.
3. Verify all service locations and inverts with mechanical engineer before construction.
4. Water service to have a minimum of 7.5' of cover.
5. Water meter location shall be within the prescribed distance from the outside wall.
6. All water service lines to have V-Bio Enhanced Polyethylene Encasement and installed per the SPUC Water Policy Manual.
7. Abandon/remove existing well and septic system per County requirements.
8. Maintain a minimum of 18" of vertical separation between water main and sewer.

CATCH BASIN/MANHOLE SCHEDULE

STRUCTURE NO.	BARREL SIZE	NEENAH CASTING NO.
CB 1	60"	R-2573-1C
CB 2	48"	R-2573-1C
CB 3	48"	R-2573-1C
CB 5	24" X 36"	R-3067V
CONTROL STRUCTURE	48"	R-2573-1C
MH 101	48"	R-1642B

HYDRANT SCHEDULE

HYDRANT NO.	BREAKOFF FLANGE
HYD A	740.3

APPROVED FOR ONE YEAR FROM THIS DATE

SHAKOPEE PUBLIC UTILITIES COMMISSION _____ DATE _____

All materials and construction methods shall comply with Shakopee Public Utilities water policy manual dated August 4, 2014.

LEGEND

- PROPOSED MANHOLE/CATCH BASIN
- PROPOSED CATCH BASIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED FLARED END
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
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N

0 15 30 60 90
Scale in Feet

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ADDRESS CITY COMMENTS	2-19-24

UTILITY PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C5

ission line easement per
eds, pages 473 and 474

SEE SHEET C5
MATCH LINE

EX. STORM POND
NWL = 727.5
HWL = 734.0

Outlet Control Structure
Top 729.17 (Per Plan)
Overflow = 727.5 (Per Plan)
15" Outlet = 725.5 (Per Plan)

CB
Top 734.95
Inv. 731.2

CB
Top 737.12
Inv. 731.8

CB
Top 728.4

MH
Top 733.7
Inv. 724.44 (Per Plan)

MH
Top 732.9

FE
INV 731.0

154' – 12" HDPE @ 0.65%

REMOVE & REPLACE FENCE AS REQUIRED

PROPOSED DRAINAGE &
UTILITY EASEMENT

GROUT 3' – 6" PVC INTO 12" HDPE OUTLET PIPE

CS 1
TOP 737.0
INV 733.0 (WEIR WALL)
INV 731.0 (INTLET)
INV 732.0 (OUTLET)

INV 731.0

33' – 12" HDPE @ 0.0%

INFILTRATION BASIN
OUTLET ELEV. = 733.0
BOTTOM OF BASIN = 731.0
INFILT. VOL. PROVIDED = 21,012 CU.FT.
100-YR HWL = 734.8

132' – 18" HDPE @ 0.53%

100' – 24" HDPE @ 0.40%

CB 2
TOP 738.0
INV 734.1

CB 1 W/PRESERVER
TOP 738.0
INV 733.4
INV 729.4 (SUMP)

FE
INV 733.0

B-8
Ground Water = 726.5

PROPOSED DRAINAGE &
UTILITY EASEMENT

Wood fence
Block wall

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UTILITY NOTES

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CB 4	24" X 36"	R-3067V
CONTROL STRUCTURE	48"	R-2573-1C
MH 101	48"	R-1642B

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HYDRANT NO.	BREAKOFF FLANGE
HYD A	740.3

APPROVED FOR ONE YEAR FROM THIS DATE

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LEGEND

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- PROPOSED CATCH BASIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED FLARED END
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED STORM SEWER
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- PROPOSED BITUMINOUS
- PROPOSED CONTOUR
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- W — EXISTING WATERMAIN
- S — EXISTING SANITARY SEWER
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- 980 — EXISTING CONTOUR
- x 995.50 EXISTING ELEVATION

N

0 15 30 60 90
Scale in Feet

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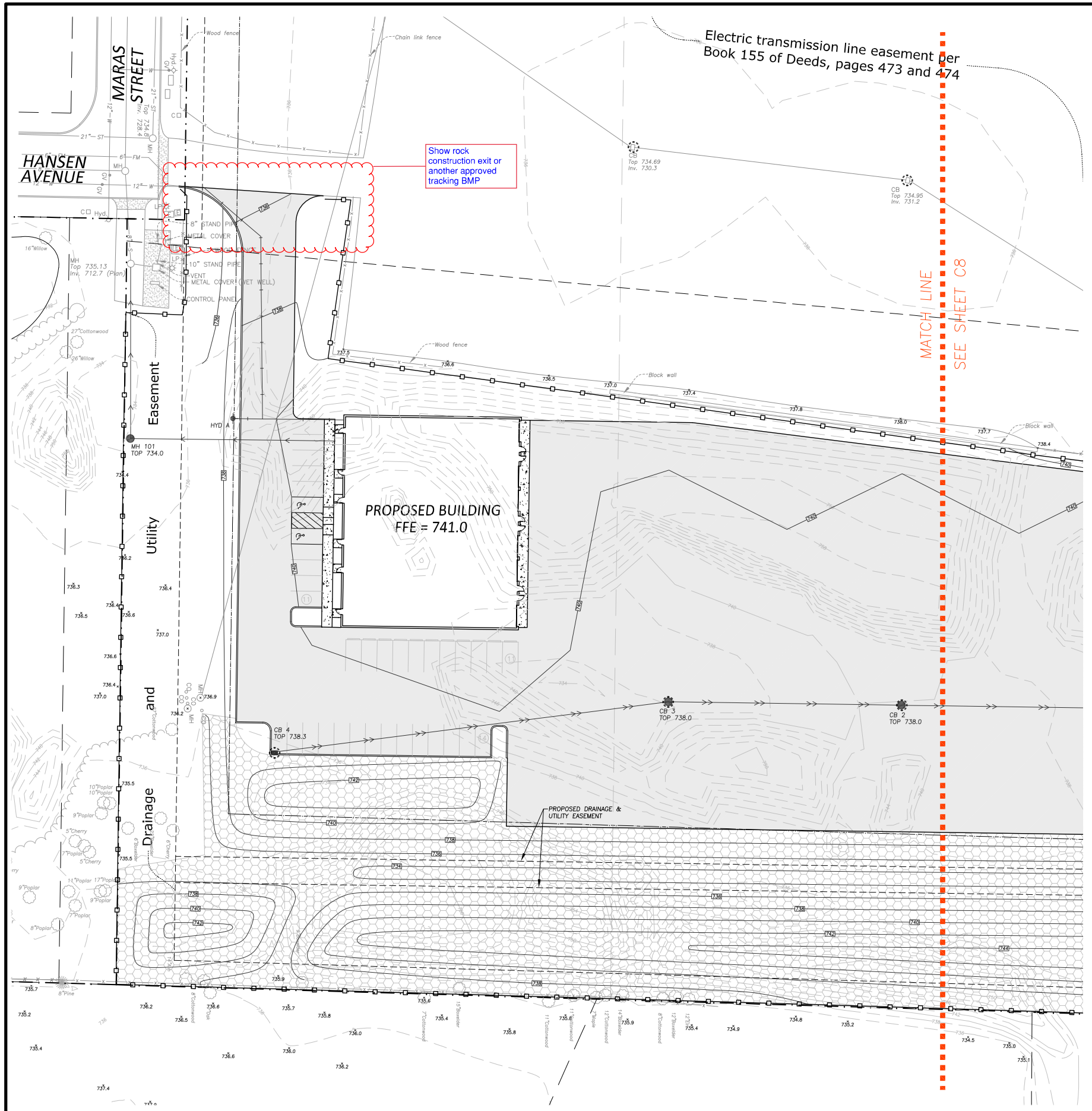
CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

UTILITY PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C6



GOPHER STATE ONE CALL

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EROSION CONTROL NOTES

1. Contractor is responsible for all notifications and inspections required by General Storm Water Permit.
2. All erosion control measures shown shall be installed prior to grading operations and maintained until all areas disturbed have been restored.
3. Sweep paved public streets as necessary where construction sediment has been deposited.
4. Each area disturbed by construction shall be restored per the specifications within 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.
5. Temporary soil stockpiles must have silt fence around them and cannot be placed in surface waters, including storm water conveyances such as curb and gutter systems, or conduits and ditches.
6. The normal wetted perimeter of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, must be stabilized within 200 lineal feet from the property edge, or from the point of discharge into any surface water. Stabilization of the last 200 lineal feet must be completed within 24 hours after connecting to a surface water.
7. All pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours of connection to a surface water.
8. Excess concrete/water from concrete trucks shall be contained on the trucks. No onsite washout will be allowed on the site.
9. If sediment is tracked offsite, work must stop until offsite tracking has been removed and additional BMP's have been installed to prevent tracking. The rock construction entrance must maintained.

INSPECTION AND MAINTENANCE

- The site must be inspected once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours.
- All inspections and maintenance conducted must be recorded in writing and records retained with the SWPPP.
- Areas of the site that have undergone final stabilization, may have the inspection of these areas reduced to once per month.
- All silt fence must be repaired, replaced, or supplemented within 24 hours when they become nonfunctional or the sediment reaches 1/3 of the height of the fence.
- Temporary and permanent sedimentation basins must be drained and the sediment removed when the depth of the sediment reaches 1/2 the storage volume. Removal must be completed within 72 hours of discovery.
- Surface waters and conveyance systems must be inspected for evidence of sediment being deposited. Removal and stabilization must take place within seven (7) days of discovery unless precluded by legal, regulatory, or physical access constraints.
- Construction site vehicle exit locations must have sediment removed from off-site paved surfaces within 24 hours of discovery.
- Infiltration areas shall be graded to finished grade when all contributing drainage areas have been stabilized. Protect infiltration area from sediment and heavy equipment compaction during/after construction with silt fence.

POLLUTION PREVENTION MANAGEMENT

- All solid waste must be disposed of off-site per the MPCA disposal requirements.
- All hazardous waste must be properly stored with restricted access to storage areas to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with MPCA Regulations.

LEGEND

- PROPOSED MANHOLE/CATCH BASIN
- PROPOSED CATCH BASIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED FLARED END
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED STORM SEWER
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS
- PROPOSED EC BLANKET CATEGORY 20
- PROPOSED CONTOUR
- SILT FENCE
- BIO-LOGS
- INLET PROTECTION DEVICE
- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- BUILDING/PARKING SETBACK LINE
- ST — EXISTING STORM SEWER
- W — EXISTING WATERMAIN
- S — EXISTING SANITARY SEWER
- FM — EXISTING SANITARY FORCE MAIN
- 980 — EXISTING CONTOUR
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N

0 15 30 60 90
Scale in Feet

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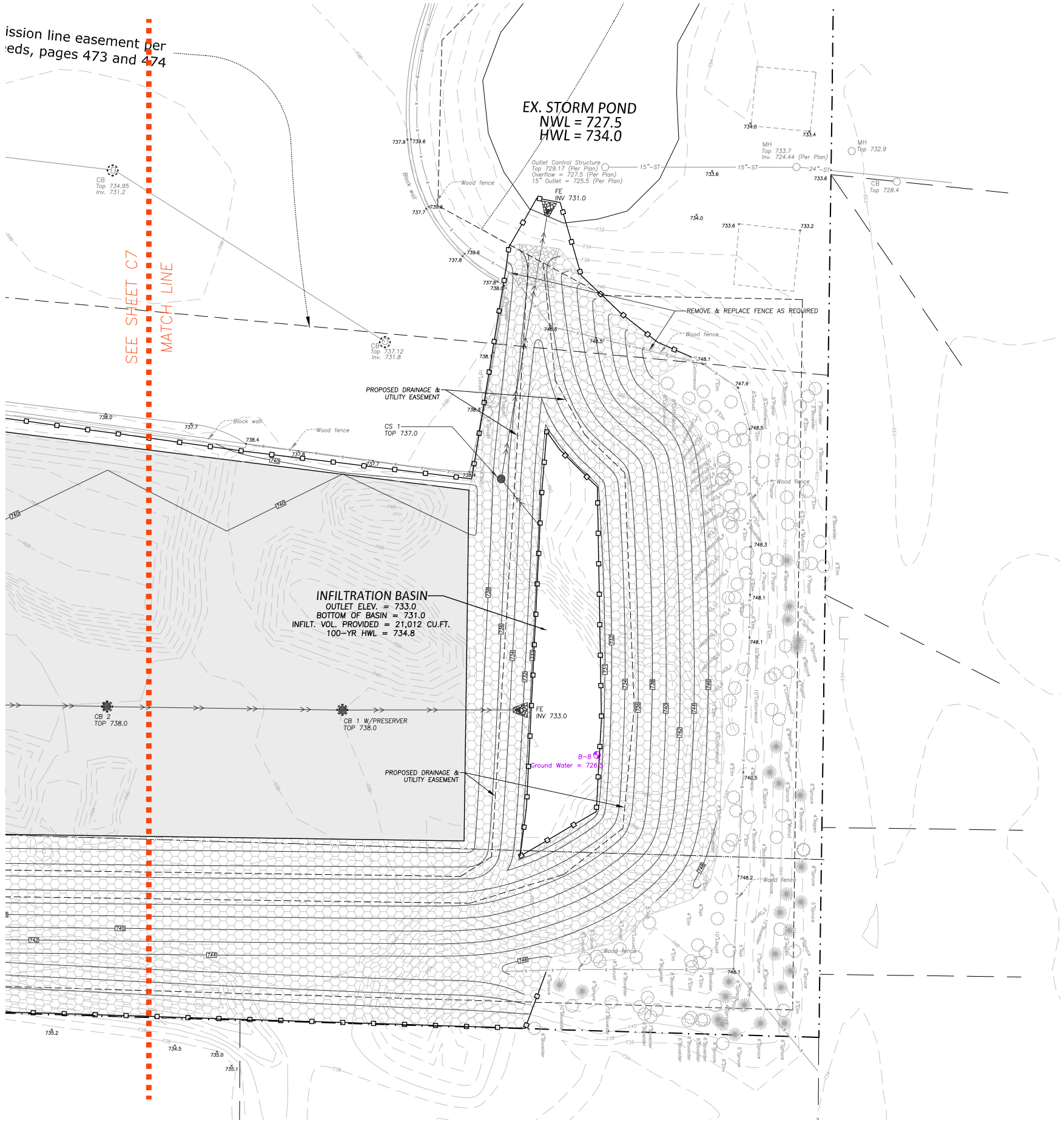
Issued

CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

EROSION CONTROL PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C7



GOPHER STATE ONE CALL

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MN. TOLL FREE 1-800-252-1166

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- Areas of the site that have undergone final stabilization, may have the inspection of these areas reduced to once per month.
- All silt fence must be repaired, replaced, or supplemented within 24 hours when they become nonfunctional or the sediment reaches 1/3 of the height of the fence.
- Temporary and permanent sedimentation basins must be drained and the sediment removed when the depth of the sediment reaches 1/2 the storage volume. Removal must be completed within 72 hours of discovery.
- Surface waters and conveyance systems must be inspected for evidence of sediment being deposited. Removal and stabilization must take place within seven (7) days of discovery unless precluded by legal, regulatory, or physical access constraints.
- Construction site vehicle exit locations must have sediment removed from off-site paved surfaces within 24 hours of discovery.
- Infiltration areas shall be graded to finished grade when all contributing drainage areas have been stabilized. Protect infiltration area from sediment and heavy equipment compaction during/after construction with silt fence.

POLLUTION PREVENTION MANAGEMENT

- All solid waste must be disposed of off-site per the MPCA disposal requirements.
- All hazardous waste must be properly stored with restricted access to storage areas to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with MPCA Regulations.

LEGEND

- PROPOSED MANHOLE/CATCH BASIN
- PROPOSED CATCH BASIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED FLARED END
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED STORM SEWER
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS
- PROPOSED EC BLANKET CATEGORY 20
- 1050 PROPOSED CONTOUR
- SILT FENCE
- BIO-LOGS
- INLET PROTECTION DEVICE
- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- BUILDING/PARKING SETBACK LINE
- ST EXISTING STORM SEWER
- W EXISTING WATERMAIN
- S EXISTING SANITARY SEWER
- FM EXISTING SANITARY FORCE MAIN
- 980 EXISTING CONTOUR
- x 995.50 EXISTING ELEVATION

N

0 15 30 60 90
Scale in Feet

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
2400 Fieldcrest Drive, Suite 110
Eagan, MN 55122
Telephone: 651-452-5051
www.rehder.com

PROJECT NO.: 231-1321.168 DRAWING FILE: 1321168.DWG

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

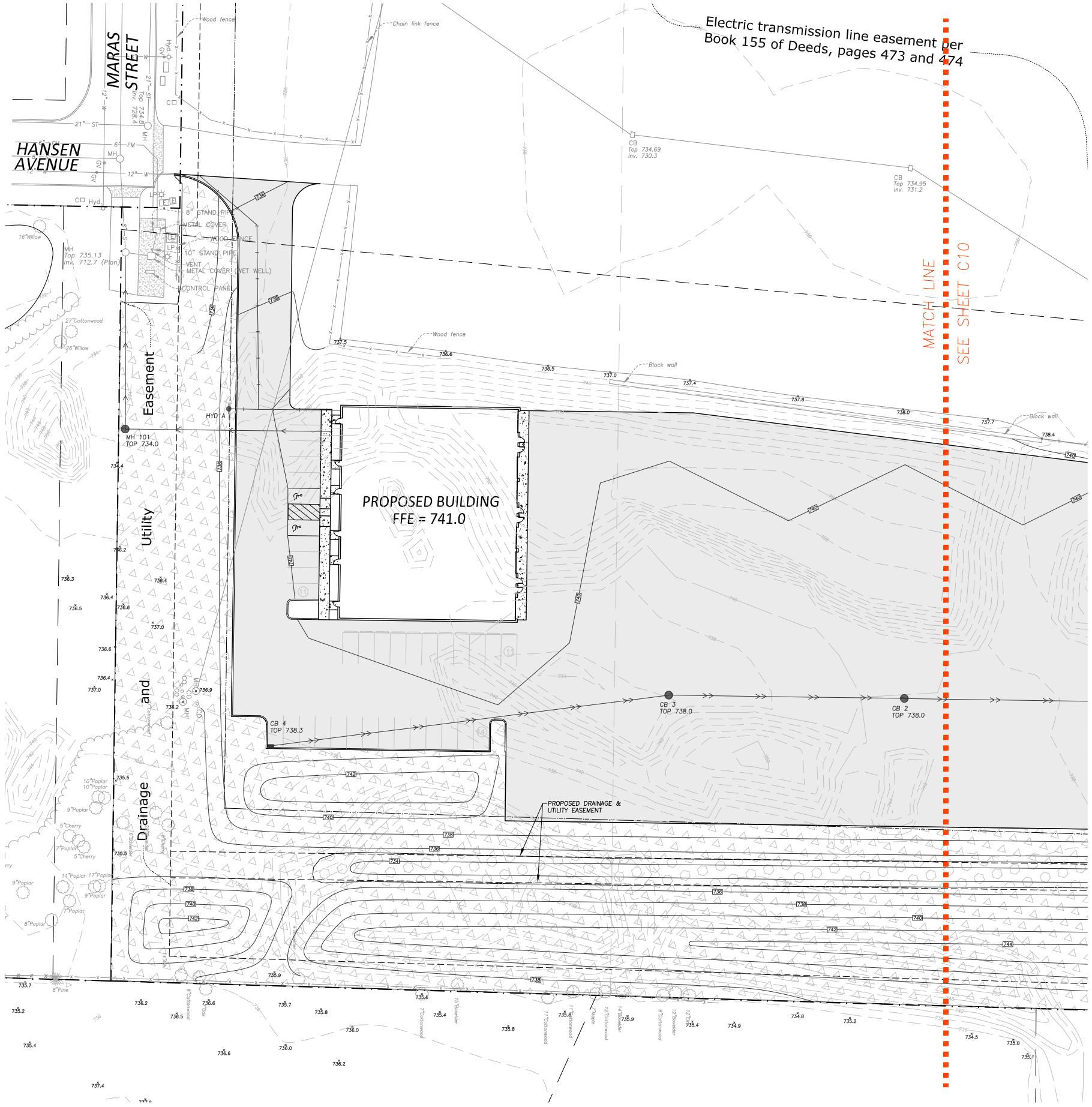
Name Nicholas P. Adam Date Reg. No. 43856

Issued

CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

EROSION CONTROL PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C8



STABILIZATION NOTES

- Spring/Summer temporary turf establishment shall be seeding with MNDOT Mixture 110 @ 100 lbs/acre and mulch shall be MNDOT Type 1.
- Winter temporary turf establishment shall be seeding with MNDOT Mixture 100 @ 100 lbs/acre and mulch shall be MNDOT Type 1.
- Permanent commercial turf establishment shall be seeding with MNDOT Mixture 25–131 @ 220 lbs/acre, fertilizer shall be 10–10–10 (NPK) commercial grade, and Mulch shall be MNDOT Type 1.
- The proposed infiltration basin shall have the bottom and side slopes seeded with MNDOT Mixture 33–261 @ 35 lbs/acre. The bottom of the basins shall be covered with MNDOT Type 3 Mulch at a rate of 2 tons/acre.
- All green spaces shall have a minimum of 6" topsoil.

LEGEND

- PROPOSED CONCRETE
- PROPOSED BITUMINOUS
- COMMERCIAL TURF ESTABLISHMENT
- BASIN TURF ESTABLISHMENT

N

0 15 30 60 90

Scale in Feet

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
3440 Federal Drive, Suite 110
Eagan, MN 55122
Telephone: 651-452-5051
www.rehder.com

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Name Nicholas P. Adam Date Reg. No. 43856

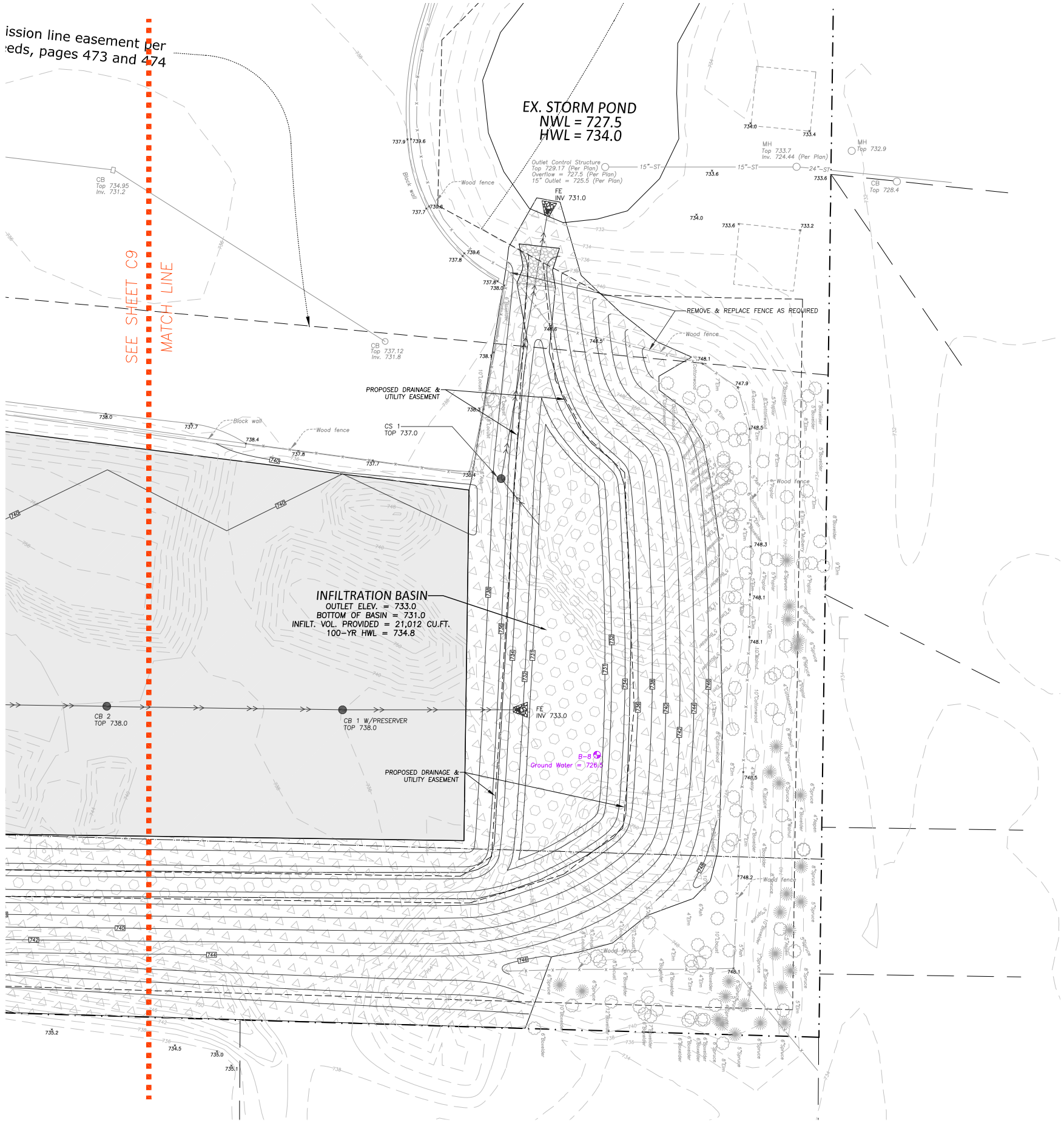
Issued

CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

TURF ESTABLISHMENT PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER

C9



STABILIZATION NOTES

- Spring/Summer temporary turf establishment shall be seeding with MNDOT Mixture 110 @ 100 lbs/acre and mulch shall be MNDOT Type 1.
- Winter temporary turf establishment shall be seeding with MNDOT Mixture 100 @ 100 lbs/acre and mulch shall be MNDOT Type 1.
- Permanent commercial turf establishment shall be seeding with MNDOT Mixture 25-131 @ 220 lbs/acre, fertilizer shall be 10-10-10 (NPK) commercial grade, and Mulch shall be MNDOT Type 1.
- The proposed infiltration basin shall have the bottom and side slopes seeded with MNDOT Mixture 33-261 @ 35 lbs/acre. The bottom of the basins shall be covered with MNDOT Type 3 Mulch at a rate of 2 tons/acre.
- All green spaces shall have a minimum of 6" topsoil.

LEGEND

- PROPOSED CONCRETE
- PROPOSED BITUMINOUS
- COMMERCIAL TURF ESTABLISHMENT
- BASIN TURF ESTABLISHMENT

N

0 15 30 60 90
Scale in Feet

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
3440 Federal Drive, Suite 110
Eagan, MN 55122
Telephone: 651-452-5051
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PROJECT NO.: 231-1321.168 DRAWING FILE: 1321168.DWG

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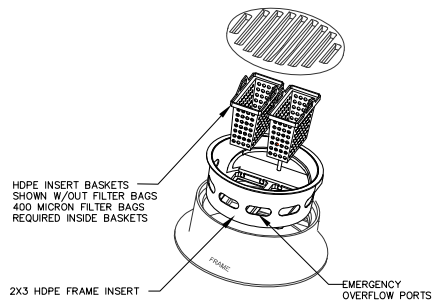
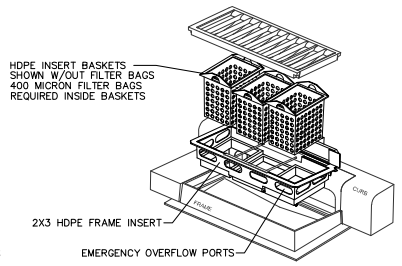
Date _____
Name Nicholas P. Adam Reg. No. 43856

Issued	
CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

TURF ESTABLISHMENT PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

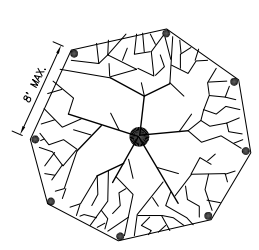
SHEET NUMBER
C10





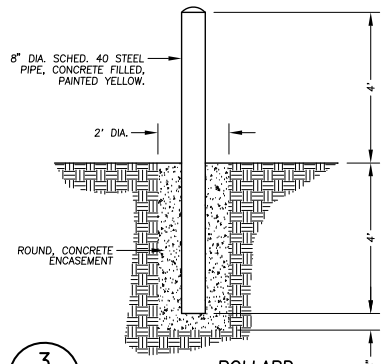
NOTE: USE THIS TYPE OF INLET PROTECTION AFTER THE CASTING IS INSTALLED.

1 / C11 — INLET PROTECTION (INFRASAFE OR EQUAL)
NO SCALE

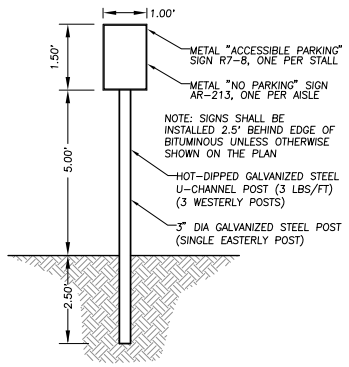


4' SNOW FENCE WITH POST 8' ON CENTER TO BE PLACED AROUND TREE AT THE DRIP LINE OF THE OUTER MOST BRANCHES.

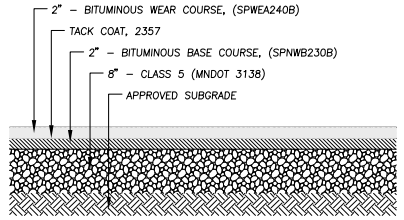
2 / C11 — TREE PROTECTION
NO SCALE



3 / C11 — BOLLARD
NO SCALE

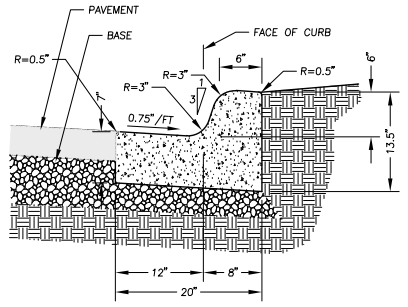


4 / C11 — ACCESSIBLE PARKING SIGN AND POST
NO SCALE



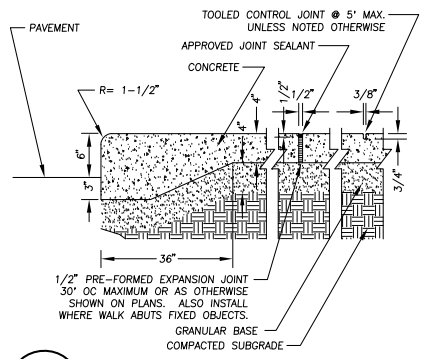
NOTE: VERIFY ADEQUACY OF PAVEMENT SECTION WITH ENGINEER AFTER SUBGRADE SOILS ARE EXPOSED AND BEFORE BITUMINOUS PAVEMENT IS PLACED.

5 / C11 — PAVEMENT SECTION
NO SCALE



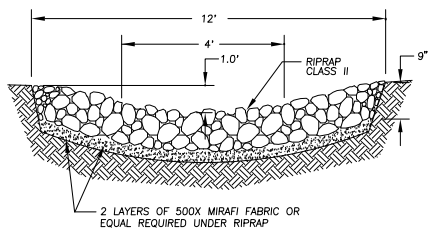
Note: Where contours indicate, ignore 0.75"/ft slope indicated above and match adjoining pavement slope to prevent gutter from "ponding".

6 / C11 — B612 CONCRETE CURB & GUTTER
NO SCALE

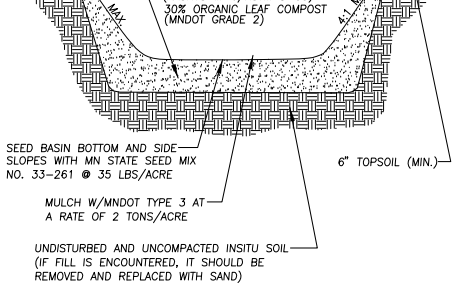


7 / C11 — SIDEWALK/INTEGRAL CURB
NO SCALE

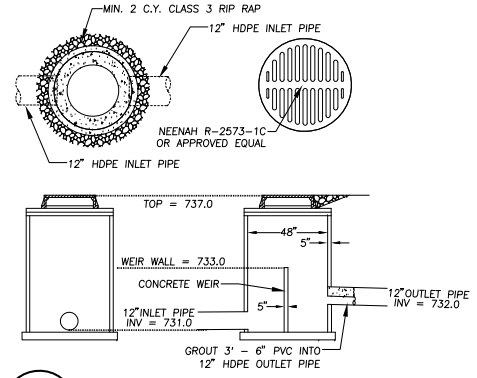
Use city curb detail



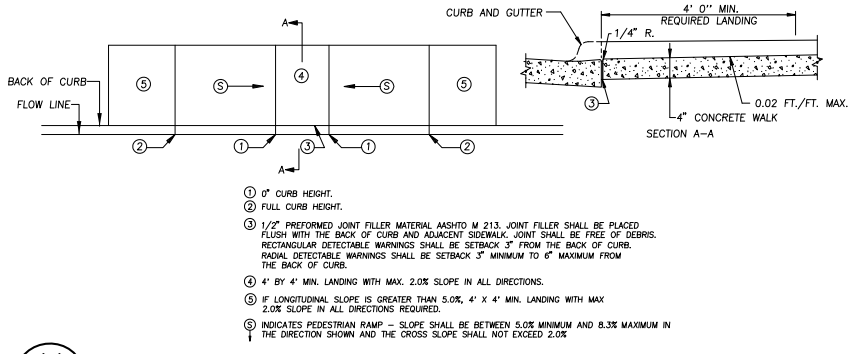
8 / C11 — INFILTRATION BASIN EMERGENCY OVERFLOW
NO SCALE



9 / C11 — INFILTRATION BASIN X-SECTION
NO SCALE

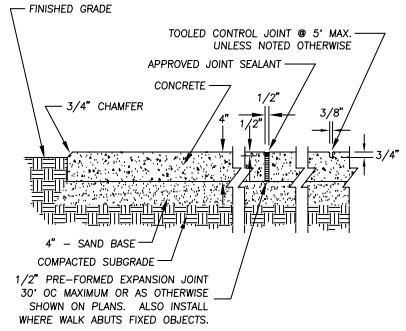


10 / C11 — CONTROL STRUCTURE
NO SCALE

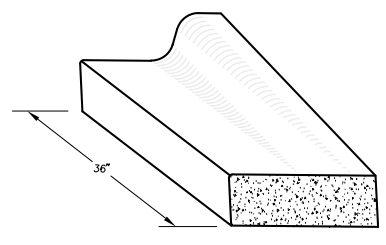


① 0" CURB HEIGHT.
② FULL CURB HEIGHT.
③ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
④ 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
⑤ IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
Ⓢ INDICATES PEDESTRIAN RAMP – SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%

11 / C11 — PEDESTRIAN RAMP
NO SCALE

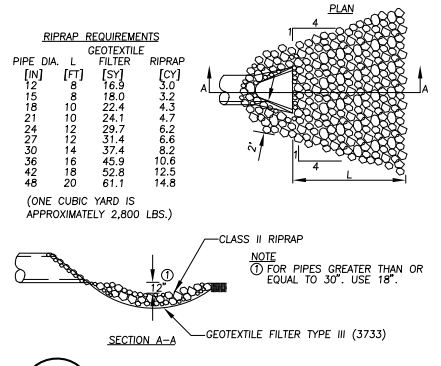


12 / C11 — CONCRETE SIDEWALK
NO SCALE



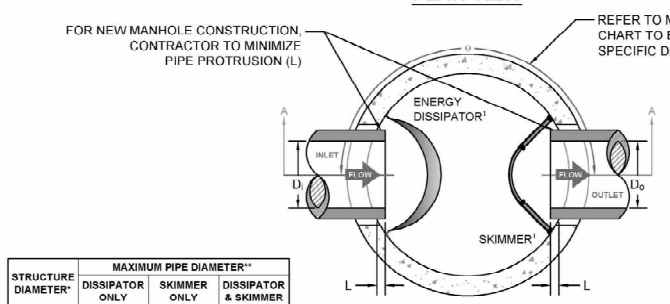
Note: Curb type B612 shown; similar for other curb types.

13 / C11 — CURB & GUTTER BEAVERTAIL
NO SCALE



14 / C11 — RIPRAP DETAIL
NO SCALE

PLAN VIEW



STRUCTURE DIAMETER*	MAXIMUM PIPE DIAMETER** DISSIPATOR ONLY	SKIMMER ONLY	DISSIPATOR & SKIMMER
48"	27"	24"	15"
60"	36"	30"	24"
72"	48"	42"	30"
84"		48"	36"
96"			48"

*RECOMMENDED TO PROVIDE ADEQUATE SPACING BETWEEN COMPONENTS FOR INSTALLATION, ACCESS & MAINTENANCE. REFER TO MANHOLE SIZING CHARTS FOR MORE DETAILED STRUCTURE SIZING OR CONTACT MOMENTUM FOR PROJECT SPECIFIC DETAILS.

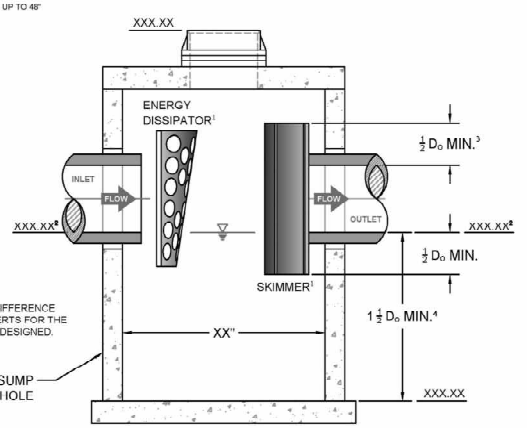
**PRESERVER® COMPONENTS ACCOMMODATE PIPE SIZES UP TO 48" DIAMETER.

NOTE 1: THE PRESERVER® ENERGY DISSIPATOR WAS DESIGNED AND TESTED TO FUNCTION WITH OR WITHOUT A SKIMMER. DISSIPATORS & SKIMMERS CAN BE UTILIZED IN TANDEM OR INDEPENDENTLY.

PART NUMBER*	PIPE DIAMETER**	ALLOWABLE PEAK FLOW
D15 / S15	12"	20 CFS
	15"	25 CFS
D21 / S21	18"	30 CFS
	21"	35 CFS
D27 / S27	24"	50 CFS
	27"	60 CFS
D36 / S36	30"	85 CFS
	36"	100 CFS
D48 / S48	42"	145 CFS
	48"	175 CFS

*"D" = DISSIPATOR, PLACED AT INLET(S)
"S" = SKIMMER, PLACED AT OUTLET
**CONTACT MOMENTUM FOR PIPE SIZES NOT LISTED

CROSS SECTION AA



NOTE 2: MINIMIZE ELEVATION DIFFERENCE BETWEEN INLET AND OUTLET INVERTS FOR THE PRESERVER® TO FUNCTION AS DESIGNED.

NOTE 3: STOCK SKIMMERS HAVE A MINIMUM FREEBOARD DEPTH OF ½ D_0. FOR GREATER FREEBOARD DEPTHS, DESIGNERS CAN UPSIZE THE SKIMMER, OR USE A CUSTOMIZED SKIMMER. FOR CUSTOM DESIGNS, AND/OR PROJECT SPECIFIC DETAILS, CONTACT MOMENTUM.

NOTE 4: ADDITIONAL DEPTH IS RECOMMENDED FOR POLLUTANT STORAGE (½ D_0 + POLLUTANT STORAGE DEPTH). SIZING CALCULATOR SHOULD BE USED TO ENSURE ADEQUATE POLLUTANT STORAGE VOLUME.

Not to Scale

PRESERVER® — momentum ENVIRONMENTAL — 877-773-0073 • www.MomentumEnv.com

THE PRESERVER™
STANDARD INSTALL DETAIL
ENERGY DISSIPATOR AND/OR SKIMMER
PROUDLY (PROUDLY MATERIALS) PROUDLY MANUFACTURED IN THE USA (SOME MATERIALS MAY BE SOURCED FROM OUTSIDE THE USA)

CONCEPTUAL PLAN DISCLAIMER: THIS GENERIC DETAIL DOES NOT ENDORSE THE SIZING, FIT, AND APPLICABILITY OF IT IS PROVIDED FOR THIS SPECIFIC PROJECT. IT IS THE RESPONSIBILITY OF THE DESIGN ENGINEER TO ENSURE THAT THE SIZING AND APPLICATION OF THIS DETAIL IS IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. MOMENTUM ENVIRONMENTAL LLC DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS. THE DESIGN ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
3440 Federal Drive, Suite 110
Eagan, MN 55122
Telephone: 651-452-5051
www.rehder.com

PROJECT NO.: 231-1321.168 DRAWING FILE: 1321168.DWG

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

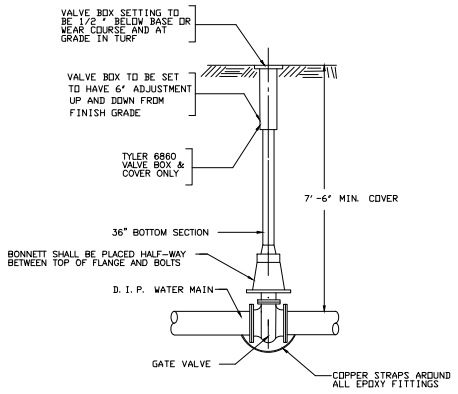
Name: Nicholas P. Adam Date:
Reg. No.: 43856

Issued	
CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

DETAILS
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C11

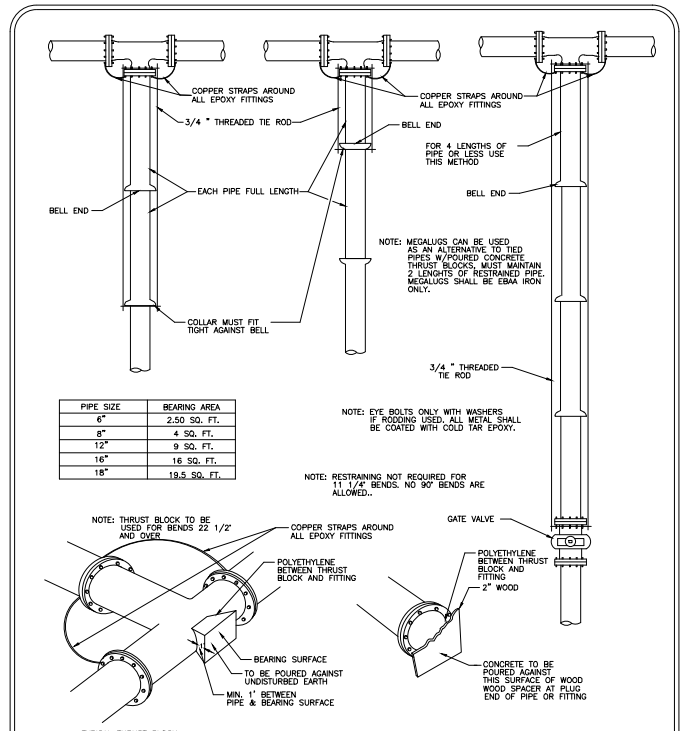
NOTES:
1. VALVE BOX SHALL BE CENTERED ON OPERATING NUTS. STRAIGHT, FREE FROM DEBRIS, AND ALL SECTIONS UNBROKEN.
2. VALVES IN EASEMENTS SHALL HAVE CHANNEL POST, WITNESS MARKERS WITH REFLECTIVE "G.V." SIGN.
3. DEEP VALVES SHALL HAVE NUT EXTENSIONS INSTALLED TO ELEVATION TO ACCOMMODATE STANDARD 10' KEY. BOTTOM NUT SHALL BE BOLTED TO VALVE NUT AND ONLY ONE SECTION.
4. COMPACTION WITH MECHANICAL TAMPER AROUND VALVE BOX SHALL BE PLACED AND COMPACTED WITH 2' LIFTS TO ACHIEVE 95% COMPACTION.



TYPICAL VALVE BOX INSTALLATION

NO SCALE

SPU Shakopee Public Utilities	Shakopee Public Utilities Commission Details For Watermain Construction	WAT - 002				
		ADOPTED	REV.		DESIGN	
		SPUC	DATE	APP'D	DRAWN	RRM
		RES. # 1075			APP'D	JDA
		08-04-14				

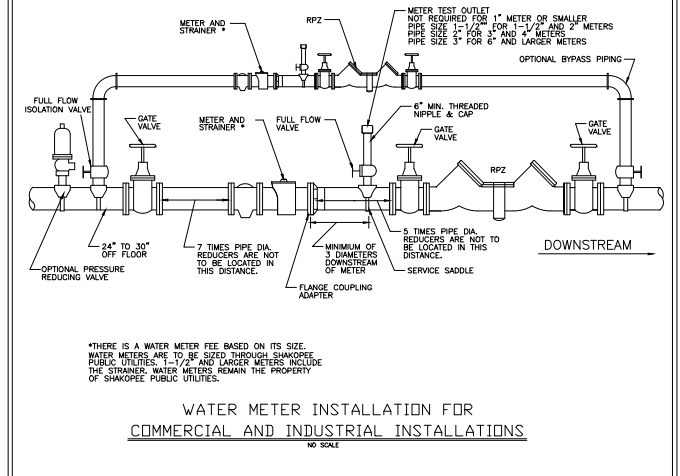


PIPE SIZE	BEARING AREA
6"	2.50 SQ. FT.
8"	4 SQ. FT.
12"	9 SQ. FT.
16"	16 SQ. FT.
18"	19.5 SQ. FT.

THRUST RESTRAINTS FOR BENDS, TEES, AND PLUGS

NO SCALE

SPU Shakopee Public Utilities	Shakopee Public Utilities Commission Details For Watermain Construction	WAT - 007				
		ADOPTED	REV.		DESIGN	
		SPUC	DATE	APP'D	DRAWN	RRM
		RES. # 1075			APP'D	JDA
		08-04-14				



*THERE IS A WATER METER FEE BASED ON ITS SIZE. WATER METERS ARE TO BE SIZED THROUGH SHAKOPEE PUBLIC UTILITIES. 1-1/2" AND LARGER METERS INCLUDE THE STRAINER. WATER METERS REMAIN THE PROPERTY OF SHAKOPEE PUBLIC UTILITIES.

WATER METER INSTALLATION FOR COMMERCIAL AND INDUSTRIAL INSTALLATIONS

NO SCALE

SPU Shakopee Public Utilities	Shakopee Public Utilities Commission Details For Watermain Construction	WAT - 011				
		ADOPTED	REV.		DESIGN	
		SPUC	DATE	APP'D	DRAWN	SNM
		RES. # 1075	12-24-19	JRC	APP'D	JDA
		08-04-14				

SPU: Add the following details:
WAT 008 - Hydrant
WAT 028 - 3" and Larger Fire and/or Domestic Riser Systems

If irrigation is desired, come out of building after backflow or include irrigation detail WAT-015.

Add applicable City details:
2003 - Sanitary Sewer Service
2001 - Standard Sanitary Sewer Manhole
1003 - Concrete curb & gutter

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www.rehder.com

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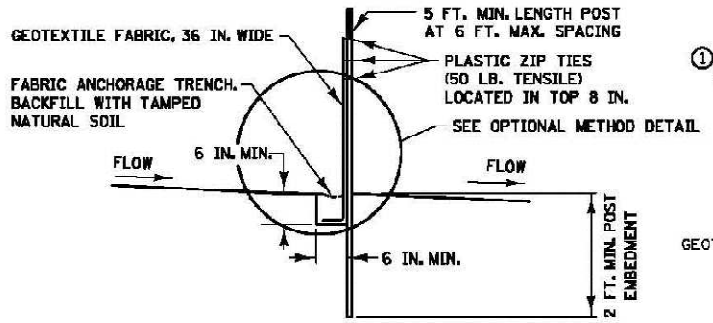
Name Nicholas P. Adam Date Reg. No. 43856

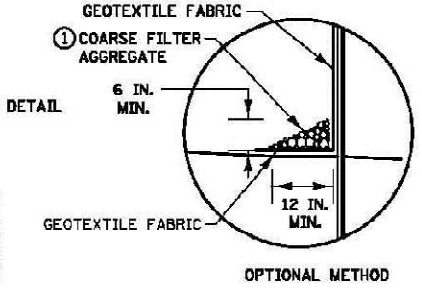
Issued

CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

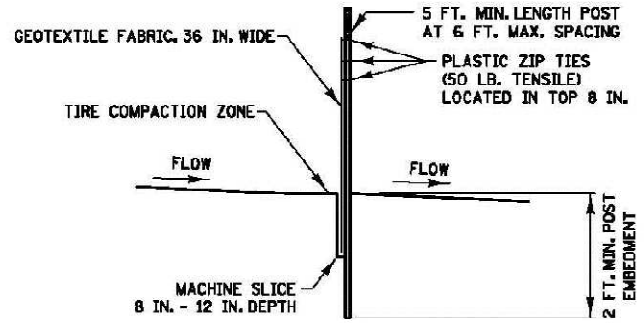
CITY DETAILS
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C12

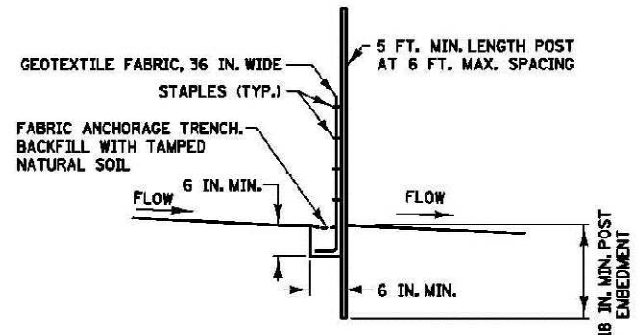




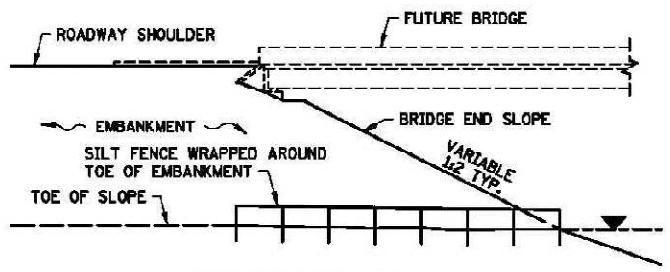
SILT FENCE TYPE HI ②
(HAND INSTALLED)



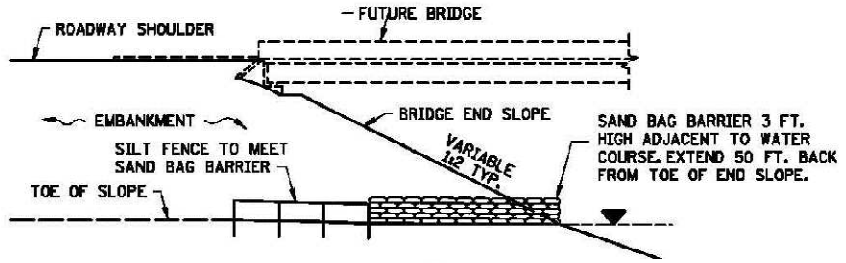
SILT FENCE TYPE MS ②
(MACHINE SLICED)



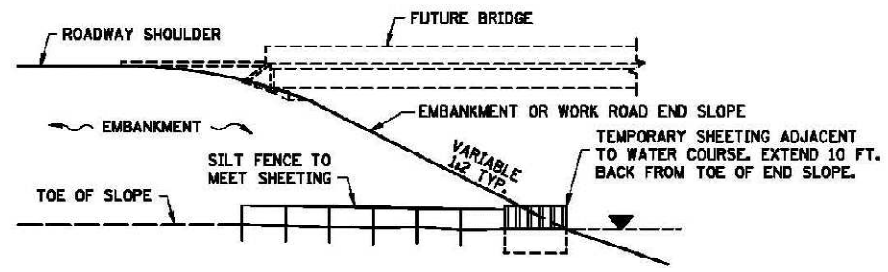
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

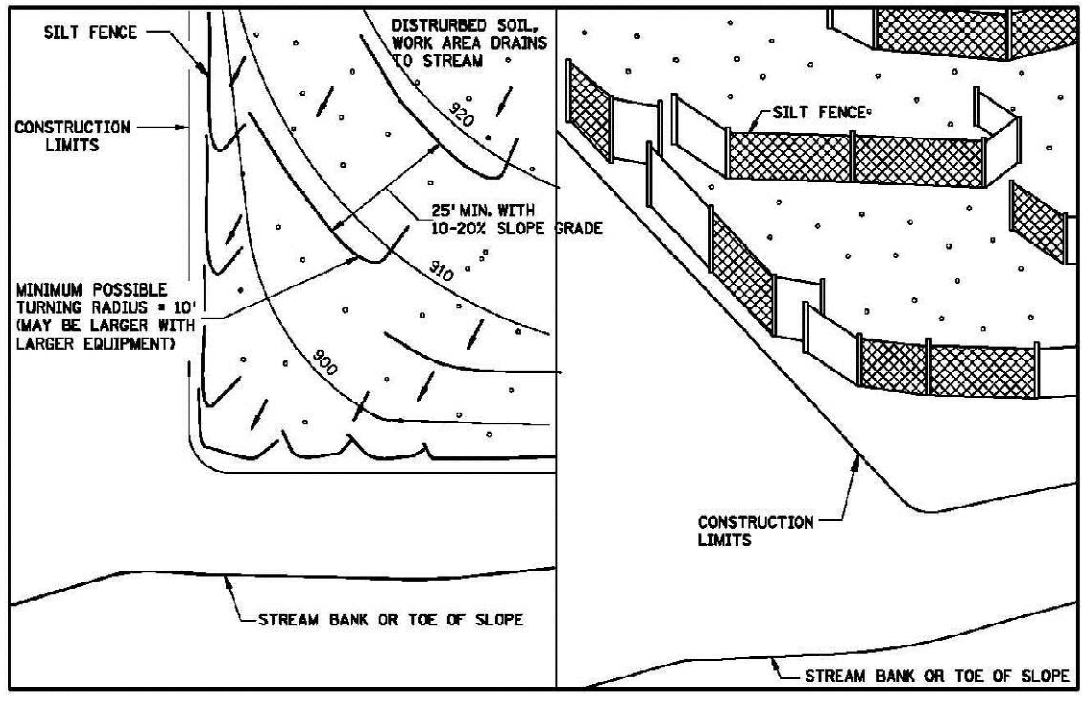


SILT FENCE WITH SAND BAGS ⑤



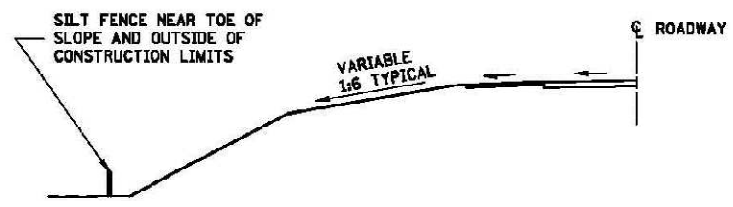
SILT FENCE WITH SHEETING ⑥

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1./2 ACRE.
⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1. ACRE.
⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:
APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 6 OF 8
APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
SILT FENCE

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

PLOTTED/REVISED: 4-APR-2018
IPLOT NAME: s405_6.spn
PATH & FILENAME: OTS\Design Standards\Development\New Border\400_Series\s405_6.spn.dgn

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
3440 Federal Drive, Suite 110
Eagan, MN 55122
Telephone: 651-452-9051
www.rehder.com

PROJECT NO.: 231-1321.168 DRAWING FILE: 1321168.DWG

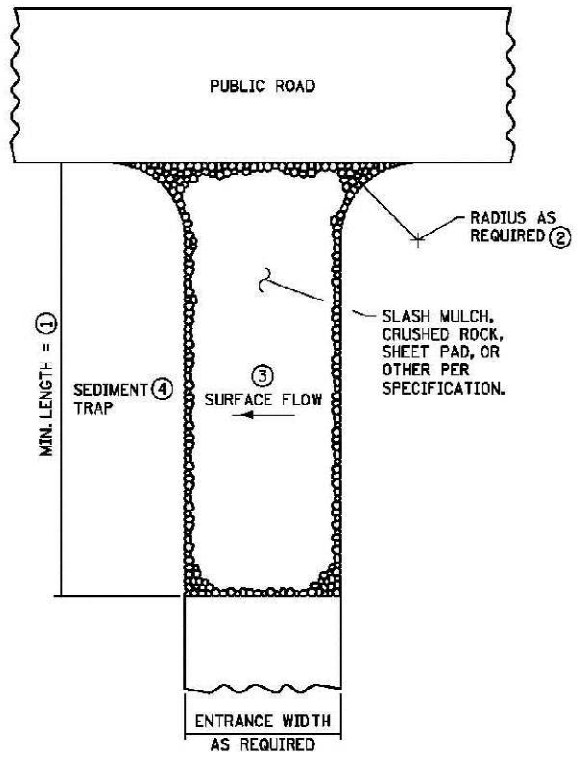
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name: Nicholas P. Adam Date
Reg. No. 43856

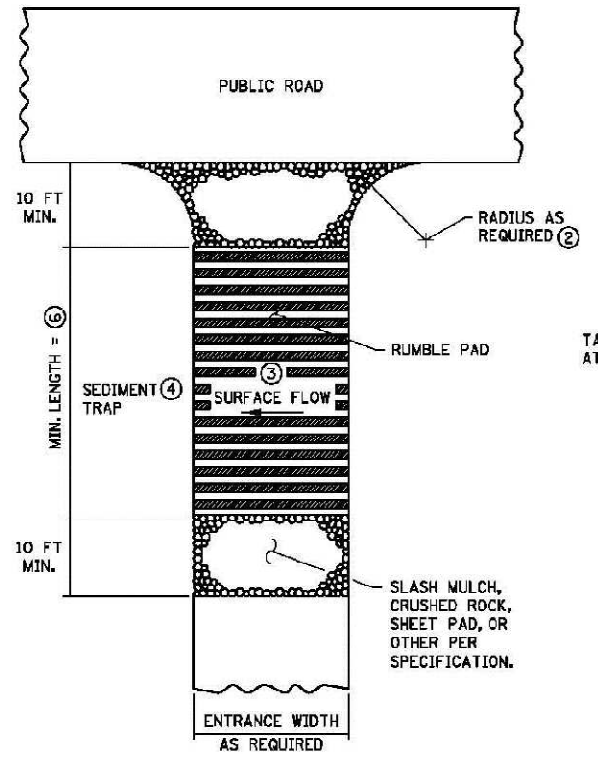
Issued
CITY SUBMITAL
ADDRESS CITY COMMENTS
1-25-24
2-19-24

MNDOT STANDARD DETAIL PLATE
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

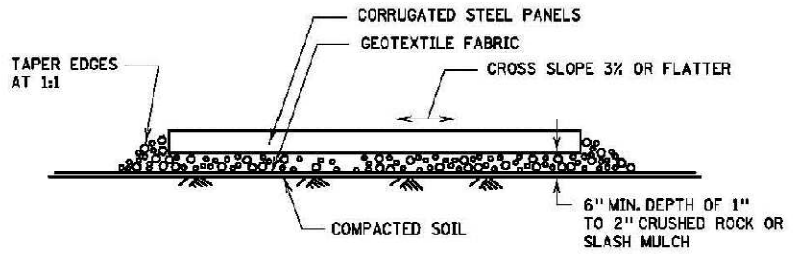
SHEET NUMBER
C13



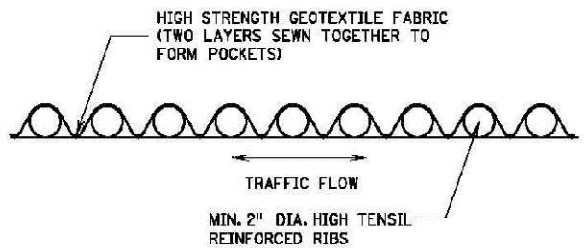
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



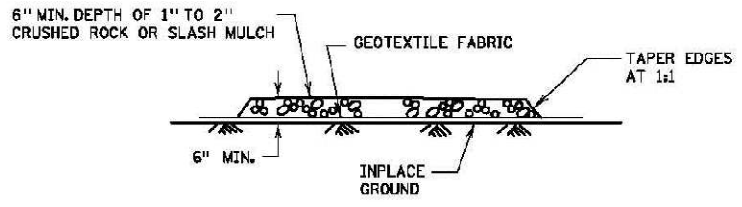
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 5 OF 8

APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

STABILIZED CONSTRUCTION EXIT

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

IPLOT NAME: s405_5_sqn
PATH & FILENAME: OTS\Design Standards\Development\New Border\400_Series\s405_5_spndgn

PLOTTED/REVISED: 4-APR-2018

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
3440 Federal Drive, Suite 110
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Telephone: 651-452-5051
www.rehder.com

PROJECT NO.: 231-1321.168 DRAWING FILE: 1321168.DWG

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

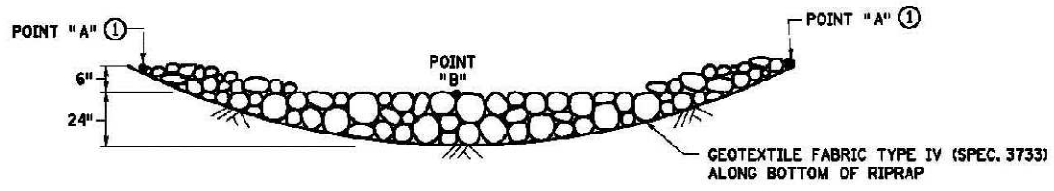
Date _____ Reg. No. 43856

Name: Nicholas P. Adam

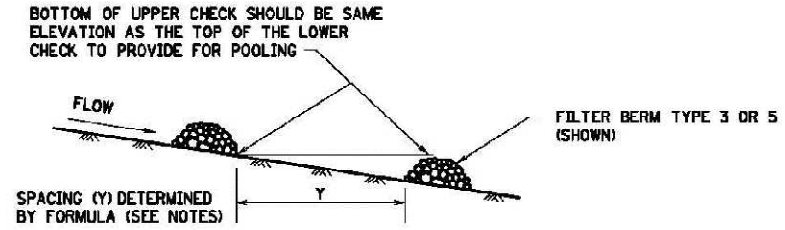
Issued
CITY SUBMITTAL
ADDRESS CITY COMMENTS
1-25-24
2-19-24

MNDOT STANDARD DETAIL PLATE
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

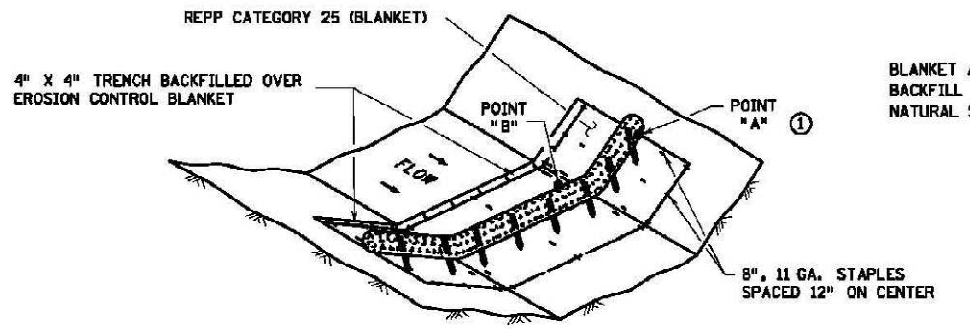
SHEET NUMBER
C14

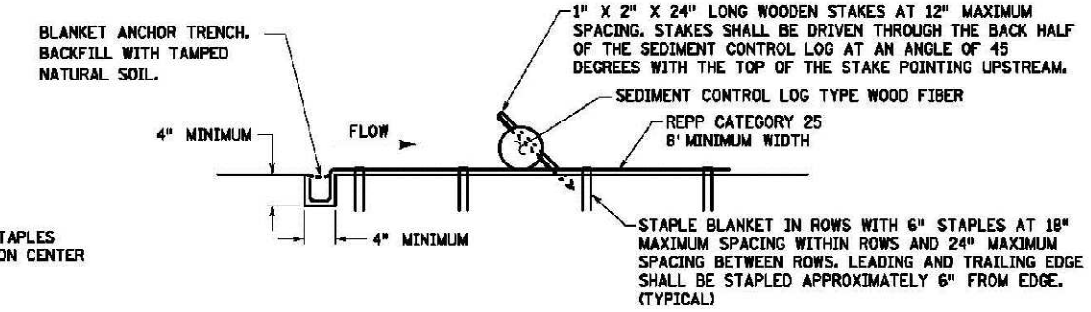


ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ③
FOR USE ON ROUGH-GRADED AREAS
ONLY FOR USE OUTSIDE CLEAR ZONE ②

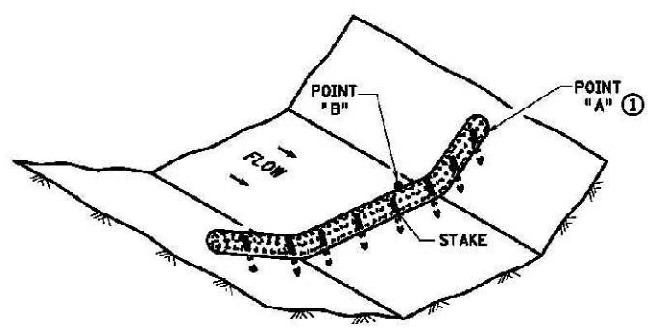


DITCH CHECK SPACING
FOR ALL FILTER BERM TYPES





SEDIMENT CONTROL LOG TYPE REPP (BLANKET) SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤
FOR USE ON ROUGH GRADED AREAS

NOTES:
REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT.)}}{\text{\% CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6" HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC.

④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC.

⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC.

REVISION:

APPROVED: JANUARY 8, 2020
MARIE KARKOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 3 OF 8

APPROVED: 1-8-2020
REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
DITCH CHECK

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

PLOTTED/REVISED: 24-JAN-2020
PLOT NAME: s405_3_spd
PATH & FILENAME: O:\Design\Standards\Development\StandardPlans\DEV\400_Series\s405_3_spd.dgn

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
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Eagan, MN 55122
Telephone: 651-452-9051
www.rehder.com

PROJECT NO.: 231-1321.168 DRAWING FILE: 1321168.DWG

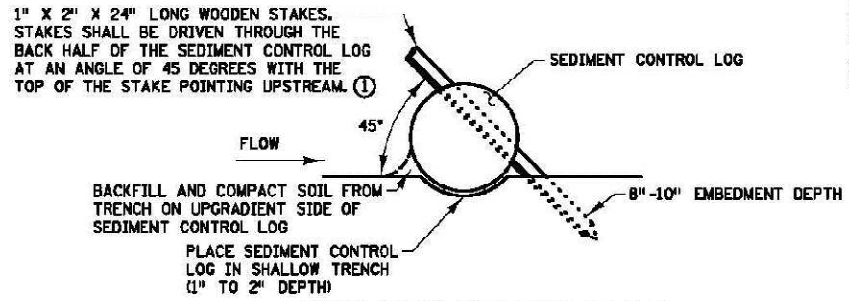
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name: Nicholas P. Adam Date
Reg. No. 43856

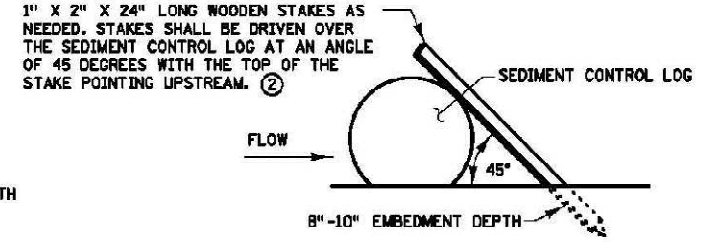
Issued
CITY SUBMITTAL
ADDRESS CITY COMMENTS
1-25-24
2-19-24

MNDOT STANDARD DETAIL PLATE
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C15

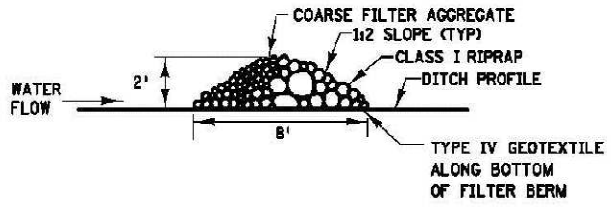


TYPES: STRAW, WOOD FIBER, OR COIR

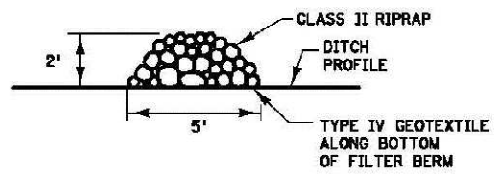


TYPES: WOOD CHIP, COMPOST, OR ROCK

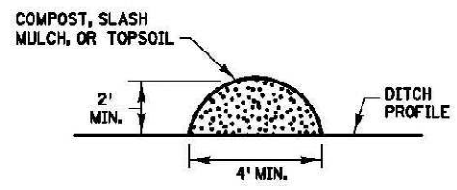
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

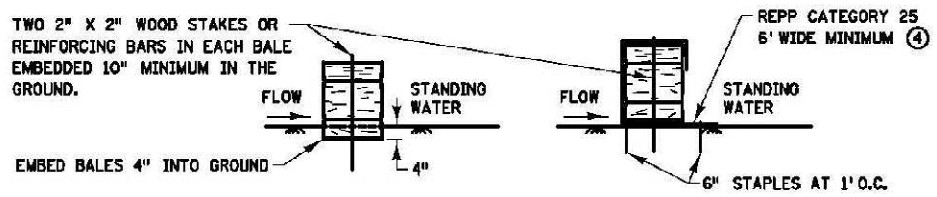


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

REPP (BLANKET) METHOD (ALTERNATE)

BALE BARRIERS (3)

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.

(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

(4) INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:

APPROVED: JANUARY 8, 2020

MARIC KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 2 OF 8

APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

IPLOT NAME: s405_2_sgn
PATH & FILENAME: OTS\Design\Standards\Development\Standard Plans\DEV400_Series\405_2_sgn.dgn

PLOTTED/REVISED: 24-JAN-2020

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
3440 Federal Drive, Suite 110
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PROJECT NO.: 231-1321.168 DRAWING FILE: 1321168.DWG

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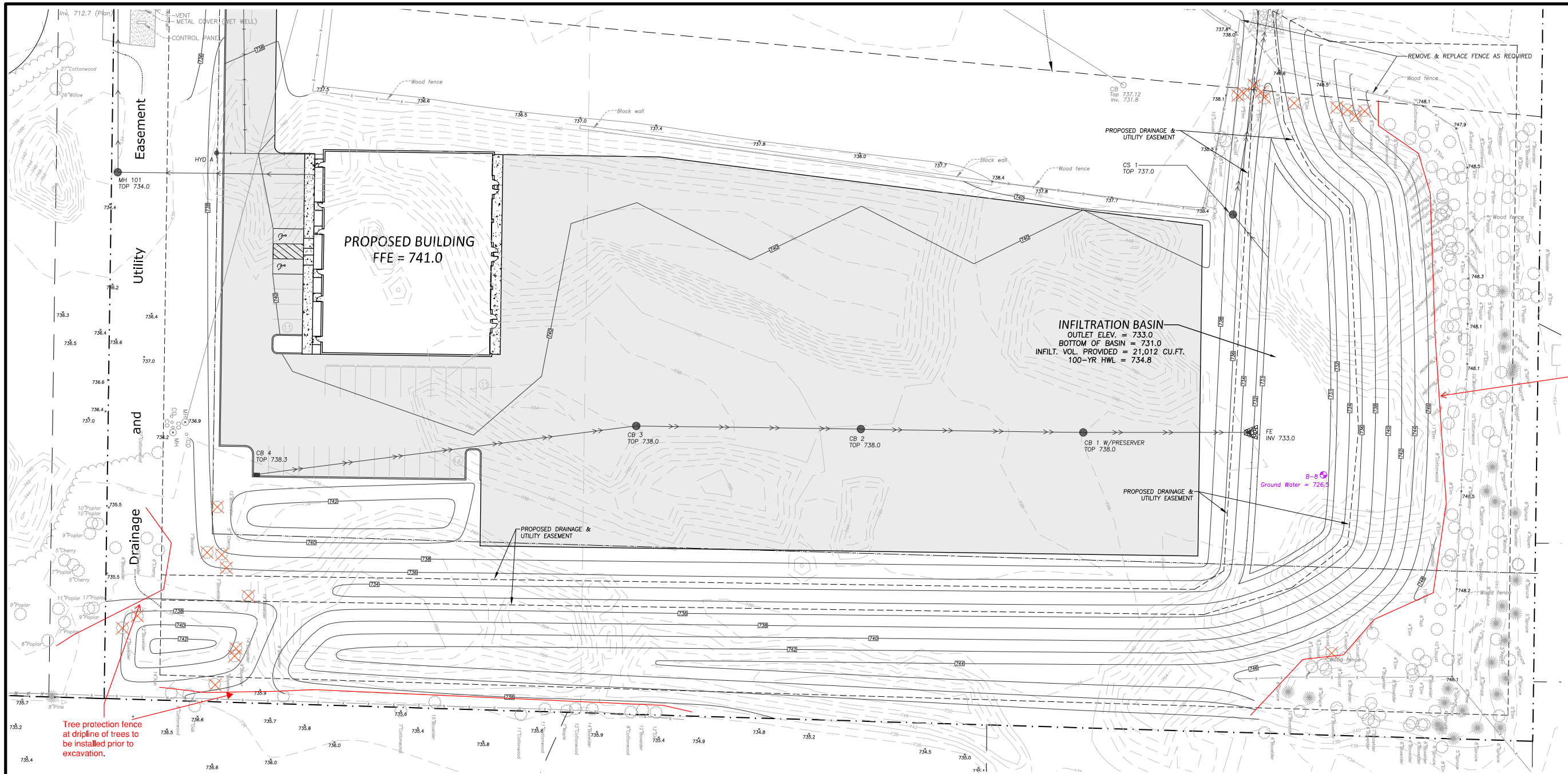
Name: Nicholas P. Adam Date
Reg. No. 43856

Issued

CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

MNDOT STANDARD DETAIL PLATE
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C16



Tree/Point #	Diameter	Species	Action	Tree/Point #	Diameter	Species	Action	Tree/Point #	Diameter	Species	Action	Tree/Point #	Diameter	Species	Action	Tree/Point #	Diameter	Species	Action	Tree/Point #	Diameter	Species	Action	Tree/Point #	Diameter	Species	Action
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2385	18	Elm	Save	3659	10	Locust	Save	3714	5	Elm	Save	3786	5	Spruce	Save	3845	5	Poplar	Save	3947	9	Boxelder	Save	5784	27	Cottonwood	Save
3522	12	Boxelder	Save	3661	5	Ash	Save	3715	7	Cottonwood	Save	3787	4	Spruce	Save	3847	4	Poplar	Save	3948	12	Boxelder	Save	5795	6	Boxelder	Save
3523	6	Locust	Save	3662	6	Ash	Save	3717	7	Cottonwood	Save	3790	6	Spruce	Save	3848	5	Poplar	Save	3950	12	Boxelder	Save	5796	22	Boxelder	Save
3524	7	Locust	Save	3664	10	Elm	Save	3718	7	Elm	Save	3791	8	Pine	Save	3851	6	Spruce	Save	3951	15	Boxelder	Save	5797	6	Cherry	Save
3525	4	Locust	Save	3667	6	Boxelder	Save	3721	9	Cottonwood	Save	3792	8	Pine	Save	3852	9	Elm	Save	3954	17	Cottonwood	Save				
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3545	8	Boxelder	Save	3689	5	Boxelder	Save	3741	6	Boxelder	Remove	3816	8	Spruce	Save	3871	5	Boxelder	Save	5725	12	Boxelder	Save				
3546	5	Locust	Save	3690	5	Elm	Save	3743	10	Locust	Save	3817	4	Poplar	Save	3873	7	Boxelder	Save	5726	8	Cottonwood	Save				
3547	6	Boxelder	Save	3692	4	Elm	Save	3744	6	Locust	Save	3819	4	Boxelder	Save	3886	9	Maple	Save	5728	14	Boxelder	Save				
3548	4	Locust	Save	3693	10	Cottonwood	Save	3745	8	Locust	Save	3820	4	Boxelder	Save	3895	13	Maple	Save	5732	12	Cottonwood	Save				
3549	5	Locust	Save	3695	4	Boxelder	Save	3746	6	Ash	Save	3821	8	Walnut	Save	3903	11	Basswood	Save	5733	7	Maple	Save				
3552	7	Boxelder	Save	3696	6	Elm	Save	3750	6	Boxelder	Save	3823	6	Spruce	Save	3906	52	Willow	Save	5737	11	Cottonwood	Save				
3557	4	Chokecherry	Save	3697	4	Boxelder	Save	3761	6	Spruce	Save	3824	6	Spruce	Save	3911	63	Willow	Save	5742	15	Boxelder	Save				
3589	9	Ash	Save	3698	7	Elm	Save	3762	6	Spruce	Save	3826	4	Boxelder	Save	3914	60	Willow	Save	5748	9	Boxelder	Save				
3590	15	Locust	Save	3699	6	Elm	Save	3763	10	Boxelder	Save	3827	4	Mulberry	Save	3916	70	Willow	Save	5754	19	Boxelder	Remove				
3591	6	Ash	Save	3700	9	Cottonwood	Save	3764	12	Boxelder	Save	3828	6	Spruce	Save	3920	12	Maple	Save	5757	11	Boxelder	Remove				
3645	8	Locust	Save	3701	9	Cottonwood	Save	3766	6	Boxelder	Save	3829	6	Spruce	Save	3921	24	Willow	Save	5760	14	Boxelder	Remove				
3646	8	Locust	Save	3702	5	Elm	Save	3768	6	Boxelder	Save	3831	8	Walnut	Save	3922	10	Spruce	Save	5761	9	Boxelder	Remove				
3647	8	Locust	Save	3703	6	Cottonwood	Save	3769	8	Boxelder	Save	3832	10	Cottonwood	Save	3925	11	Maple	Save	5767	8	Cottonwood	Save				
3648	5	Locust	Remove	3704	7	Elm	Save	3776	6	Boxelder	Save	3833	10	Walnut	Save	3929	20	Maple	Save	5768	14	Ash	Save				
3649	4	Locust	Save	3705	9	Cottonwood	Save	3777	6	Boxelder	Save	3834	4	Cottonwood	Save	3930	12	Poplar	Save	5772	7	Boxelder	Remove				
3650	7	Locust	Save	3706	6	Cottonwood	Save	3778	8	Boxelder	Save	3835	4	Poplar	Save	3930	12	Spruce	Save	5773	12	Boxelder	Remove				
3653	5	Ash	Save	3707	5	Ash	Save	3779	6	Boxelder	Save	3837	10	Elm	Save	3935	10	Spruce	Save	5778	7	Boxelder	Remove				
3655	5	Elm	Save	3708	6	Cottonwood	Save	3780	6	Spruce	Save	3838	6	Elm	Save	3936	10	Spruce	Save	5779	5	Cherry	Remove				
3656	4	Elm	Save	3709	5	Boxelder	Save	3781	6	Boxelder	Save	3839	6	Spruce	Save	3943	9	Boxelder	Save	5780	7	Boxelder	Remove				
3657	4	Elm	Save	3712	6	Locust	Save	3782	4	Boxelder	Save	3841	6	Spruce	Save	3944	6	Elm	Save	5782	12	Boxelder	Remove				

LEGEND

- EXISTING TREE TO BE REMOVED (6" Elm)
- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- BUILDING/PARKING SETBACK LINE

TREE PRESERVATION CALCULATIONS

TOTAL TREES:	234 TREES
TOTAL SIGNIFICANT TREES:	137 TREES
SIGNIFICANT TREES REMOVED:	17 TREES
TOTAL TREES REMOVED:	22 TREES
INVENTORIED DBH:	1177 INCHES
ALLOWABLE REMOVAL (60% DBH):	706 INCHES
PROPOSED REMOVAL (DBH):	164 INCHES
HIGH PRIORITY TREES (DBH):	20 INCHES
PROPOSED HIGH PRIORITY TREES REMOVED (DBH)	0 INCHES

N

0 15 30 60 90
Scale in Feet

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PROJECT NO.: 231-1321.168 DRAWING FILE: 1321168.DWG

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name Nicholas P. Adam Date
Reg. No. 43856

Issued	
CITY SUBMITTAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

TREE PRESERVATION PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C17

SPECIFICATIONS

GENERAL

I. GENERAL

A. Before construction begins, the Contractor will contact all utility companies, both public and private and have them locate all utilities within the construction limits.
B. The Contractor shall be responsible for arranging all required inspections with the governing authority that has jurisdiction over the work that is to be performed.
C. The Contractor shall stay within the construction limits unless approved otherwise by the Owner and or Engineer. Construction limits are defined by the property boundary unless shown different on the plan.
D. The Contractor shall be responsible for protecting all existing structures, utilities, trees, etc. from damage during construction.
E. The Contractor shall be responsible for correcting any damage (at Contractor's expense).
F. Any discrepancies found on the site that affect the proposed work shall be reported to the Owner and/or Engineer before the completion of any additional work.
G. A soils report and pavement recommendation has yet to be provided by a geotechnical engineer.
H. Existing Topography and Boundary Survey provided by Rehder & Associates, Inc.

SITE CLEARING

I. GENERAL

A. Remove trees, shrubs, grass, and other vegetation or obstructions, as required, to permit installation of improvements shown on the Plans.

II. EXECUTION

A. Trees and stumps shall be hauled from the site. Burial on–site or burning of trees and stumps will not be allowed.
B. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.
C. Topsoil shall be stripped from disturbed areas and stockpiled in piles not exceeding 8–feet in depth.
D. Remove all back dirt and unsuitable material from under drives and roadways within 3–feet of final pavement subgrade.
E. Remove all waste materials and unsuitable or excess topsoil from Owner's property.

GRADING, EROSION CONTROL, AND TURF ESTABLISHMENT

I. GENERAL

A. All grading, erosion control and turf establishment shall be according to the materials, workmanship, and other applicable requirements of the Minnesota Department of Transportation "Standard Specifications for Construction", latest edition, unless otherwise specified.
B. All erosion control measures shown on the plans must be installed prior to commencement of grading operations and maintained until all areas altered on the site have been restored.
C. All areas disturbed by construction shall be restored with seed and disked mulch, sod, wood fiber blanket, or be hard surfaced within two weeks of substantial completion of construction.
D. Provide approved borrow soil materials from off–site when sufficient approved soil materials are not available from excavations. Remove all excess and unsatisfactory material from the site.
E. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
F. Compaction shall not be less than the following percentages of maximum dry density according to ASTM D 698:
i. Under structures, building slabs, steps, and pavements, compact the top 12 inches below subgrade and each layer of backfill or fill material at 100 percent maximum dry density.
ii. Under walkways, compact the top 6 inches below subgrade and each layer of backfill or fill material at 100 percent maximum dry density.
iii. Under lawn or unpaved areas, compact the top 6 inches below subgrade and each layer of backfill or fill material at 95 percent maximum dry density.
G. Grades as shown on the plan are to finished grade.
H. Backfill trenches involving utilities under building slabs to be designed by Others (per their requirements).

II. PRODUCTS

A. Satisfactory soils include ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 2–inches in any dimension, debris waste, frozen materials, vegetation and other deleterious matter.
B. Unsatisfactory soils include ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
C. All backfill and fill materials must be satisfactory soil materials.
D. Topsoil shall be per ASTM D 5268, free of stones 1" or larger.
E. Subbase and base material must be a naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand meeting MNDOT Specifications for Class 5 gravel.
F. Spring/Summer temporary turf establishment: seed shall be MNDOT Mixture 110 @ 100 lbs/acre and mulch shall be MNDOT Type 1.
G. Winter temporary turf establishment: seed shall be MNDOT Mixture 100 @ 100 lbs/acre and mulch shall be MNDOT Type 1.
H. Commercial turf establishment: seed shall be MNDOT Mixture 25–131 @ 220 lbs/acre, fertilizer shall be 10–10–10 (NPK) commercial grade, and mulch shall be MNDOT Type 1.

6-inches of top soil required

III. EXECUTION

A. Fill under buildings shall be compacted to meet Soil Engineer's recommendations.
B. Place 4–inches of topsoil over all areas to be re–established with turf.
C. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil–bearing water runoff or airborne dust to adjacent properties and walkways.
D. Place inlet protection devices in catch basins and maintain until all areas disturbed have been restored.
E. Wherever construction vehicle access routes intersect paved public roads, provisions must be made to minimize the transport of sediment (mud) by runoff or vehicles tracking onto the paved road surface. Where sediment is transported onto a public road surface, the roads shall be cleaned thoroughly at the end of each day. Sediment shall be removed by shoveling or sweeping and be transported to a sediment controlled disposal area. Street washing shall be allowed only after sediment is removed in this manner.

BITUMINOUS PAVEMENT

E. GENERAL

A. Provide hot–mix asphalt pavement according to the materials, workmanship, and other applicable requirements of the Minnesota Department of Transportation "Standard Specifications for Construction", latest edition, unless otherwise specified
B. Conform to applicable standards of authorities having jurisdiction for asphalt paving work on public property.

II. PRODUCTS

A. Use coarse and fine aggregate materials and gradations that have performed satisfactorily in previous installations.
B. Provide a base and wear course as indicated on the plan unless otherwise specified.
C. Provide a tack coat as indicated on the plan unless otherwise specified.

III. EXECUTION

A. Verify that the subgrade is dry and in suitable condition to support paving and imposed loads.
B. The Contractor shall furnish a tandem truck loaded with a minimum of 14–tons to check the completed subgrade and/or aggregate base for soft spots prior to placement.
C. Machine place hot–mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness, when compacted.
D. Begin compaction as soon as placed hot–mix paving will bear roller weight without excessive displacement.
E. Provide an average density of 96 percent of reference laboratory density according to ASTM D 1559, but not less than 94 percent nor greater than 100 percent
F. Tolerances: Base course thickness shall be plus or minus 0.5–inches and surface course shall be plus or minus 0.25–inches.

PORTLAND CEMENT CONCRETE PAVEMENT

I. GENERAL

A. Provide Portland cement concrete pavement for roads, curbs, walks and exterior slabs according to the materials, workmanship, and other applicable requirements of the Minnesota Department of Transportation "Standard Specifications for Construction", latest edition, unless otherwise specified.

II. PRODUCTS

A. Portland cement concrete for curb and gutter and sidewalk shall be 4000 psi, 28–day compressive strength, 5.0% air entrainment, and 3–inch slump.
B. Curing compound shall be solvent–borne, liquid membrane–forming ASTM C309, Type I or approved equal.

III. EXECUTION

A. The Contractor shall furnish a tandem truck loaded with a minimum of 14–tons to check the completed subgrade and/or aggregate base for soft spots prior to pavement placement.
B. Comply with requirements and with ACI 304R for measuring, mixing, transporting, and placing concrete.
C. Comply with the Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars" for placing and supporting reinforcement.
D. Preformed expansion joints using 0.5–inch thickness shall be placed at each end of curb radius, at intersections, and approximately every 200–feet.
E. Contraction joints shall be placed at minimum 10–foot intervals in the curb and gutter and at 5–foot for walks.
F. Provide a medium to fine broom finish perpendicular to traffic flow.
G. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures using moisture curing, moisture–retaining–cover curing, curing compound or a combination of these.

SANITARY SEWER

I. GENERAL

A. Sanitary sewer shall comply with all local regulations pertaining to sanitary sewer systems including materials, installation, and testing. If no regulations exist, comply with "Standard Utilities Specifications" by the City Engineers Association of Minnesota, latest edition.

II. PRODUCTS

A. Sanitary sewer pipe indicated on the plan as PVC shall be polyvinyl chloride pipe, ASTM D 3034, SDR 35, for solvent–cemented or gasket joints.
B. Sanitary sewer manholes shall be precast structures with at least two and at the most five adjusting rings.
C. Sanitary sewer castings indicated on the plan shall be from the Neenah Foundry or approved equal.

III. EXECUTION

A. The plans indicate the general location and arrangement of underground sanitary sewer systems. Location and arrangement of piping take into account many design considerations. Install piping as indicated on the plans, to the extent practical.
B. Contractor should verify locations of utility connections at the building the architectural and mechanical plans.
C. PVC sewer pipe shall be bedded in accordance with ASTM D 2321, "Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe".
D. Sanitary sewer services shall be extended to within 5–feet of the building. Plug ends and mark by installing a 2" x 2" wood board from the plugged end to 4 feet out of the ground.

WATER MAIN

I. GENERAL

A. Water main shall comply with all local regulations pertaining to water main systems including materials, installation, and testing. If no local regulations exist, comply with "Standard Utilities Specifications" by the City Engineers Association of Minnesota, latest edition.

II. PRODUCTS

A. Water main, indicated on the plan as DIP, shall be ductile iron pipe, Class 52, with push on joints and shall provide electrical conductivity across each joint.
B. All fittings shall be mechanical joint fittings.
C. Hydrants and valves shall meet all local and municipality requirements.
D. PE encasement for DIP shall be AWWA C105, PE film, 0.008–inch minimum thickness, tube or sheet.

III. EXECUTION

A. The plans indicate the general location and arrangement of underground water main systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, to the extent practical.
B. Bury all water main with a depth of cover of at least 7.5–feet or with the top at least 12–inches below frost penetration, which ever is greater.
C. Water main shall be encased in PE film
D. All bends, stubs, and hydrants shall be rodded to the water main using 0.75–inch tie rods.
E. Tap water main with size and in location as indicated according to the requirements of the local water utility. The Contractor shall pay water utility fee.
F. Test all installed piping as required by the local water utility.

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I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

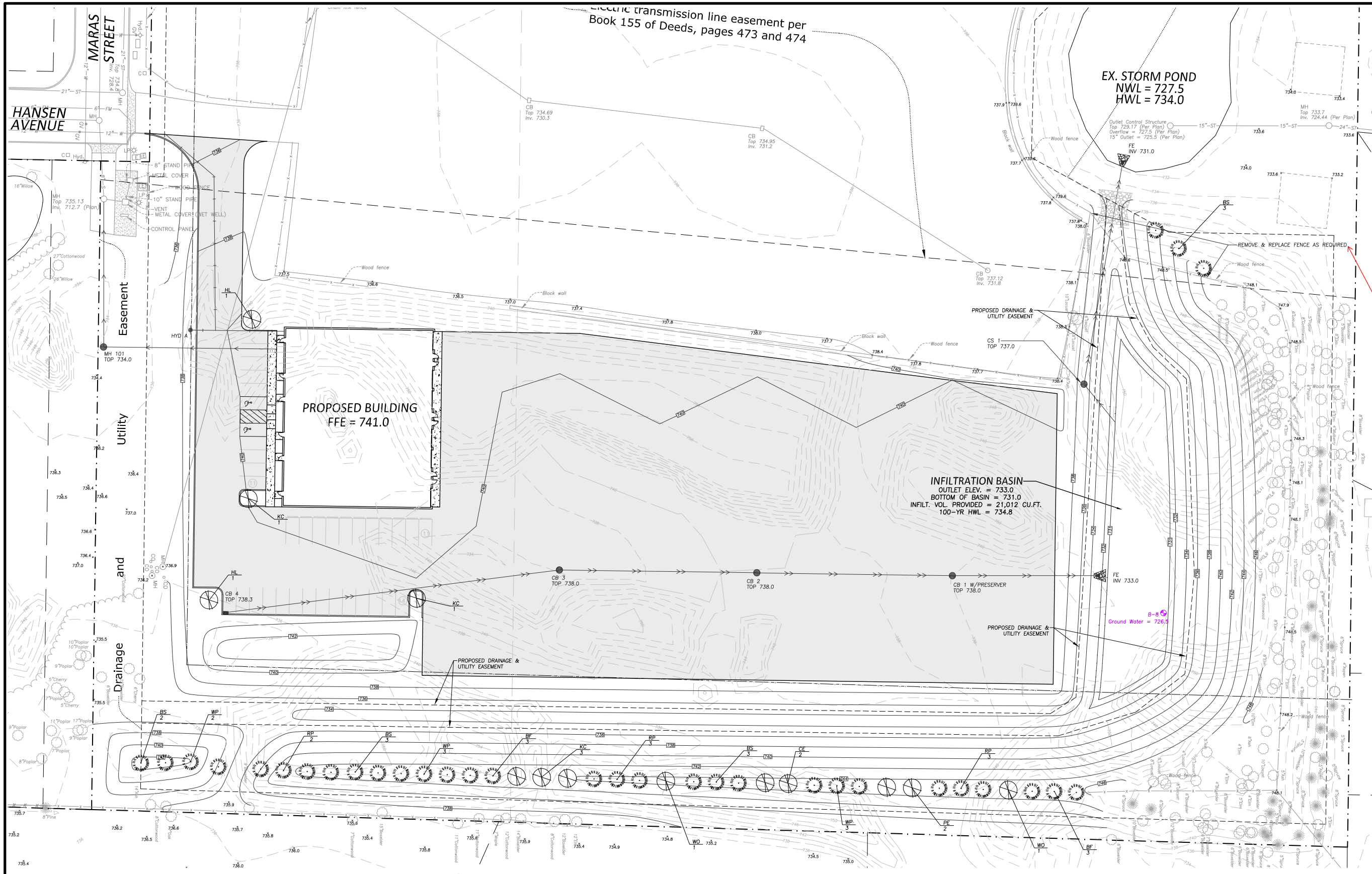
Name Nicholas P. Adam Date
Reg. No. 43856

Issued

CITY SUBMITAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

SPECIFICATIONS
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER
C18



TREE LIST

SYMBOL	QTY	SCIENTIFIC NAME	COMMON NAME	SIZE/ROOT
WO	2	Quercus alba	White Oak	2.5" B & B
PE	2	Ulmus wilsoniana hybrid	Patriot Elm	2.5" B & B
CE	2	Ulmus 'Cathedral'	Cathedral Elm	2.5" B & B
KC	5	Gymnocladus dioica	Kentucky Coffee Tree, 'Espresso'	2.5" B & B
HL	2	Gleditsia triacanthos var. inermis	Honeylocust, thornless	2.5" B & B
RP	8	Pinus resinosa	Red Pine	6' B & B
WP	8	Pinus strobus	Eastern White Pine	6' B & B
BF	9	Abies balsamea	Balsam Fir	6' B & B
BS	11	Picea mariana	Black Spruce	6' B & B
TOTAL	49			

Commercial turf establishment: seed shall be MNDOT Mixture 25-131 @ 220 lbs/acre, fertilizer shall be 10-10-10 (NPK) commercial grade, and mulch shall be MNDOT Type 1.

LANDSCAPE CALCULATIONS

PROPOSED BUILDING AREA:	12,035 S.F.
BUILDING FOOTPRINT AREA TREES REQUIRED:	23 TREES
PROPOSED IMPERVIOUS AREA INCREASE (EXCLUDING BUILDING):	116,030 S.F.
IMPERVIOUS AREA TREES REQUIRED (1 TREE PER 4000 S.F.):	29 TREES
TOTAL TREES REQUIRED:	52 TREES
COMMON SIGNIFICANT TREES REMAINING (1 CREDIT/TREE):	110 TREES
EXCEPTIONAL TREES REMAINING (4 CREDITS/TREE):	9 TREES
HIGH PRIORITY TREES REMAINING (8 CREDITS/TREE):	1 TREE
30% LANDSCAPING CREDIT:	15 TREES
TOTAL PROPOSED TREES:	49 TREES

LEGEND

- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- BUILDING/PARKING SETBACK LINE
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS
- PROPOSED TREE

Scale in Feet: 0, 15, 30, 60, 90

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CITY SUBMITAL	1-25-24
ADDRESS CITY COMMENTS	2-19-24

LANDSCAPE PLAN
MARAS STREET 1ST ADDITION
CITY OF SHAKOPEE

SHEET NUMBER

L1