SITE IMPROVEMENT PLANS

FOR

THE GREENS SUBDIVISION

IN

CITY OF WESTLAKE, CUYAHOGA COUNTY, STATE OF OHIO

UTILITIES IN PROJECT AREA

WATER
DEPT. OF PUBLIC UTILITIES
DIVISION OF WATER
1201 LAKESIDE AVE.
CLEVELAND, OH 44114
(216) 664-2444
FAX (216) 664-2838
CONTACT: FRED ROBERTS

CABLE
WOW!
105 BLAZE INDUSTRIAL PARKWAY
BEREA, OH 44107
(440) 973- 4375 X4405035635
CONTACT: TOM AUBRY
EMAIL: TOM.AUBRY@WOWINC.COM

TELEPHONE
AT&T MIDWEST NETWORK SERVICES
13630 LORAIN AVE. ROOM 200
CLEVELAND, OH 44111
(216) 476-6037
CONTACT: SCOTT SALA
EMAIL: SS7387@ATT.COM

ELECTRIC
FIRST ENERGY / THE ILLUMINATING CO.
6896 MILLER ROAD SUITE 101
BRECKSVILLE, OH 44141-3299
(440) 546-8737
CONTACT: GARY YOHN
EMAIL: GYOHN@FIRSTENERGYCORP.COM

NATURAL GAS
COLUMBIA GAS OF OHIO
200 CIVIC CENTER DRIVE
COLUMBUS, OH 43215
PHONE: 614-460-5400 X3039
CONTACT: PAM GREEN
EMAIL: PAMELAGREEN@NISOURCE.COM

STORM & SANITARY
WESTLAKE ENGINEERING DEPT.
27700 HILLIARD BLVD.
WESTLAKE, OH 44145
PHONE: (440) 617-4145
FAX: (440) 617-4189
CONTACT: JIM SMOLIK P.E.
CITY ENGINEER

THE CITY OF WESTLAKE

WESTLAKE POLICE DEPARTMENT
27300 HILLIARD BLVD.
WESTLAKE, OH 44145
PHONE: (440) 871-3311
FAX: (440) 835-6444
CONTACT: CHIEF KEVIN BIELOZER

WESTLAKE FIRE DEPARTMENT
3200 CROCKER ROAD
WESTLAKE, OH 44145
PHONE: (440) 617-4106
FAX: (440) 835-6460
CONTACT: CHIEF JAMES HUGHES

WESTLAKE CITY HALL
27216 HILLIARD BLVD.
WESTLAKE, OH 44145
PHONE: (440) 871-3300

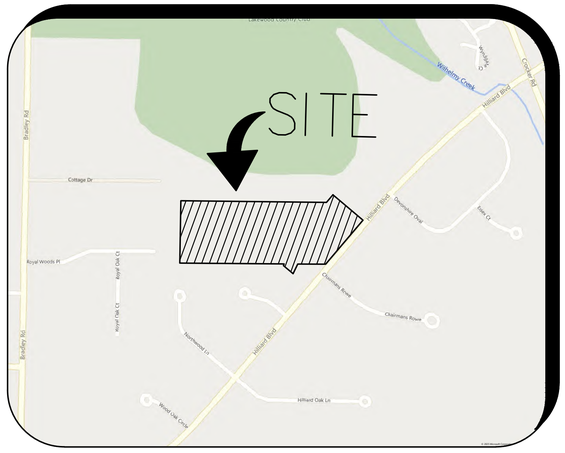
OWNER

SWIPE USA LLC
STEVE KISH
CLEVELAND, OHIO
EMAIL: STEVEMKISH@GMAIL.COM

CIVIL ENGINEER LANDSCAPE ARCHITECT AND SURVEYOR

NEFF AND ASSOCIATES

6405 YORK ROAD
PARMA HEIGHTS, OHIO 44130
PHONE: (440) 884-3100
FAX: (440) 884-3104



NORTH

VICINITY MAP
NOT TO SCALE

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SUBMITTED BY:

STATE OF OHIO
JEFFREY M. PLAUTZ
E-71328
REGISTERED
PROFESSIONAL ENGINEER

JEFFREY M. PLAUTZ - REG. ENGINEER No. 71328

04/27/26
DATE

OHIO E.P.A. WATER APPROVAL BY LETTER DATED: _____
OHIO E.P.A. SANITARY APPROVAL BY LETTER DATED: _____

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Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
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SHEET NO.
C0.0

GENERAL NOTES:

1. STORM AND SANITARY SEWERS SHALL BE CONSTRUCTED OF THE FOLLOWING:

A.) POLYVINYL CHLORIDE (PVC) – SANITARY SEWER PIPE SHALL CONFORM TO THE LATEST EDITION OF A.S.T.M. D-3034, FOR SIZES 6" TO 10" DIAMETER. JOINTS SHALL BE RUBBER GASKETED CONFORMING TO A.S.T.M. D-3212. SDR 35 SHALL BE USED FOR DEPTHS UP TO 13 FEET. SDR 26 SHALL BE USED FOR DEPTHS OVER 13 FEET.

B.) POLYVINYL CHLORIDE (PVC)– STORM SEWER PIPE SHALL CONFORM TO THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR ITEM 707.42.

C.) HIGH DENSITY POLYETHYLENE PIPE (HDPE) SHALL CONFORM TO THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS FOR ITEM 707.33. JOINTS SHALL BE RUBBER GASKETED AND WATER-TIGHT.

D.) REINFORCED CONCRETE PIPE (RCP) – FOR PIPE SIZES 12" AND MORE IN DIAMETER, CONFORM TO THE LATEST EDITION OF ASTM C-76, CLASS III, WALL "B" – UNLESS ANOTHER CLASS OR WALL IS NOTED ON THE DRAWINGS. JOINTS SHALL BE RUBBER GASKETED, CONFORMING WITH ASTM C-443.

E.) ALL STORM DRAIN PIPE PASSING UNDER THE PUBLIC ROADWAYS SHALL BE RCP.

F.) STORM DRAINS IN PUBLIC RIGHTS-OF-WAY SHALL BE RCP OR PVC PIPE. HDPE STORM DRAINS SHALL BE INSTALLED ON PRIVATE ROADS ONLY.

2. ALL STORM DRAIN AND SANITARY SEWER MAINS, LATERALS, CONNECTIONS, ETC. SHALL HAVE BEDDING CLASS I, II, OR III PER A.S.T.M. D-2321.

3. STORM & SANITARY SEWER LATERALS SHALL BE 6" PVC, SDR35 PIPE WITH "O" RING JOINTS INSTALLED AT A MINIMUM GRADE OF 1.00%, OR APPROVED EQUAL. ALL CONNECTIONS SHALL BE EXTENDED AS SHOWN ON THE PLANS.

4. ALL STORM AND SANITARY SEWER MAINS, LATERALS, CONNECTIONS, ETC. SHALL HAVE BEDDING AND PIPE COVER AS SHOWN ON THE TRENCH DETAIL.

5. BACKFILL OF SEWER TRENCHES MORE THAN 3' OUTSIDE OF PAVED AREAS SHALL BE WITH REGULAR BACKFILL. REGULAR BACKFILL SHALL BE FREE FROM ROCKS, BOULDERS MORE THAN 3" IN DIAMETER, WOOD OR ORGANIC MATERIALS. LIFTS SHALL NOT EXCEED 8" LOOSE DEPTH. PREMIUM BACKFILL SHALL BE USED ONLY AS OUTLINED IN GENERAL NOTE 13 AND 22 HEREON.

6. THE LINE AND GRADE OF SEWER MAINS SHALL BE CONTROLLED DURING THE SEWER CONSTRUCTION BY USE OF AN APPROVED LASER DEVICE. CONTRACTOR WILL PROVIDE SUCH LASER DEVICE WITHOUT ANY EXTRA COST TO THE OWNER.

7. WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO OR CROSS EITHER OVER OR UNDER AN EXISTING UTILITY, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING UTILITY, BOTH AS TO LINE AND GRADE, BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT. THERE WILL BE NO EXTRA PAYMENT FOR THE ABOVE WORK.

8. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE OHIO UTILITIES PROTECTION SERVICE (O.U.P.S.) 48-HOURS PRIOR TO STARTING THE EXCAVATION WORK. PHONE: 1-800-362-2764.

9. ALL MANHOLES AND INLET BASINS SHALL BE SET TO GRADE BY THE CONTRACTOR AND THE FINAL INSPECTION, APPROVAL AND ACCEPTANCE OF THE SEWER SYSTEM BY THE CITY OF WESTLAKE ENGINEERING DEPARTMENT SHALL BE CONTINGENT UPON THE FINAL ADJUSTMENT OF THE CASTINGS.

10. THE CONTRACTOR SHALL OBTAIN A CITY OF WESTLAKE OPENING PERMIT BEFORE BEGINNING WORK WITHIN THE HILLIARD BLVD RIGHT-OF-WAY. THE CITY ENGINEER MUST APPROVE A MAINTENANCE OF TRAFFIC PLAN, DEVELOPED BY THE CONTRACTOR AND SUBMITTED THROUGH THE BUILDING DEPARTMENT, PRIOR TO APPROVING A STREET OPENING PERMIT. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. CONTRACTOR SHALL PROVIDE ALL NECESSARY LIGHTS AND BARRICADES, AS REQUIRED BY THE APPROVED MAINTENANCE OF TRAFFIC PLAN. FLAGMEN ARE REQUIRED AT EACH END OF THE WORK AREA AT ALL TIMES WORK IS BEING DONE IN THE MILES RD RIGHT-OF-WAY.

11. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AT ALL TIMES AND SHALL BACKFILL AND GRADE EXCAVATED AREAS SO AS TO ELIMINATE PONDING ON THE SITE.

12. SANITARY AND STORM SEWER SYSTEMS IN THIS PROJECT SHALL CONFORM TO THE REQUIREMENTS OF :

- THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS (LATEST EDITION)
- THE UNIFORM STANDARD SEWER DETAILS (LATEST EDITION)

13. ALL EXCAVATION UNDER AND WITHIN 3' OF EXISTING OR PROPOSED PRIVATE ROADWAY PAVEMENT, SIDEWALKS OR DRIVES SHALL BE BACKFILLED WITH PREMIUM MATERIAL. PREMIUM BACKFILL SHALL BE LIMESTONE AND COMPACTED TO 98%. MATERIALS INCLUDING, BUT NOT LIMITED TO, RECYCLED CONCRETE, SLAG (OF ANY KIND), SANDSTONE, RIVER GRAVEL, AND FOUNDRY SAND SHALL NOT BE PERMITTED FOR BEDDING, COVER, OR BACKFILL. ALL OTHER BACKFILL SHALL BE SUBJECT TO THE REQUIREMENTS OF THE CITY ENGINEER. IN QUESTIONABLE AREAS, THE DECISION OF THE VILLAGE ENGINEER WILL PREVAIL. ALL EXCAVATION IN THE EXISTING RIGHT OF WAY AND UNDER THE EXISTING PAVEMENT IS TO BE BACK FILLED TO SUBGRADE ELEVATION WITH LSM.

14. ALL CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR SEWER ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE LATEST EDITION OF THE UNIFORM STANDARDS AND THE ORDINANCES OF THE CITY OF WESTLAKE. WHERE CONFLICTS OCCUR IN THE ABOVE, THE ENGINEER OF THE CITY OF WESTLAKE SHALL BE THE GOVERNING AUTHORITY.

15. ANY DEFECTS IN THE CONSTRUCTION, INCLUDING MATERIALS OR WORKMANSHIP, SHALL BE REPLACED OR CORRECTED BY REMOVAL AND REPLACEMENT, OR OTHER APPROVED METHODS, PRIOR TO ACCEPTANCE BY THE CITY WITHOUT ANY EXTRA COST.

16. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONTRACT DOCUMENTS AT THE JOB SITE AND RECORD THE EXACT LOCATION OF ALL SERVICE CONNECTIONS. A COPY OF THESE RECORD DRAWINGS SHALL BE DELIVERED TO THE CITY OF WESTLAKE BUILDING DEPARTMENT AT SUBSTANTIAL COMPLETION. USE ONLY DVD FORMAT.

17. ALL WORK COMPLETED IS SUBJECT TO THE DIRECT INSPECTION OF THE CITY OF WESTLAKE ENGINEER OR HIS DULY AUTHORIZED REPRESENTATIVE AND/OR CCDPW SANITARY ENGINEERING DIVISION. NO WORK SHALL PROCEED WITHOUT 24 HOURS PRIOR NOTICE TO THE CITY ENGINEER AND CCDPW.

18. ALL SEWERS, MANHOLES, JUNCTION CHAMBERS AND INLET BASINS MUST BE CLEANED BEFORE ACCEPTANCE BY THE OWNER.

19. ALL SANITARY AND STORM SEWERS SHALL BE FLUSHED AND VIDEOGRAPHICALLY INSPECTED UPON COMPLETION AND AGAIN AFTER THE THREE (3) YEAR MAINTENANCE PERIOD. A COPY OF THE VIDEO TAPES SHALL BE FURNISHED TO THE CITY OF WESTLAKE ENGINEER FOR EACH INSPECTION. USE ONLY DVD FORMAT.

20. AREAS OF PROPOSED FILL NEAR OR ON PROPOSED BUILDING PADS, DRIVES, WALKS, AND PATIOS SHALL HAVE EXISTING TOPSOIL STRIPPED AND EMBANKMENT COMPACTED TO 98% MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT PER THE GEOTECHNICAL REPORT.

21. DUST CONTROL: THE CONTRACTOR SHALL FURNISH AND APPLY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL AS DIRECTED BY THE CITY ENGINEER.

22. STORM DRAIN, SANITARY SEWER, WATER MAIN TRENCHES AND LATERAL TRENCHES UNDER AND WITHIN 3– FEET OF PUBLIC OR PRIVATE PAVEMENT SHALL BE COMPACTED WITH PREMIUM BACKFILL TO 98% MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT.

23. TRACKING OR SPILLAGE OF MUD, DIRT OR DEBRIS UPON PAVEMENTS BEYOND THE WORK AREA IS PROHIBITED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SUCH OCCURRENCE. THE CONTRACTOR, UPON NOTICE FROM THE MUNICIPAL AUTHORITY, SHALL IMMEDIATELY REMOVE ANY DEPOSITED MATERIALS FROM EXISTING PAVEMENTS. SUCH CLEANING SHALL ALSO OCCUR AT THE END OF EACH WORK DAY.

24. EXISTING PAVEMENTS ON HILLIARD BLVD, AND ALL PAVEMENTS WITHIN THE PROJECT AREA, SHALL BE SWEPT CLEAR OF MUD AND DUST AT THE CONCLUSION OF EACH WORK DAY.

25. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE PAVEMENTS WITHIN THE EXISTING RIGHTS-OF-WAY IN THE VICINITY OF THE PROJECT. PAVEMENT CONDITIONS AT THE CONCLUSION OF THE PROJECT SHALL BE EQUAL TO OR BETTER THAN THOSE WHICH ARE PRESENT AT THE COMMENCEMENT OF CONSTRUCTION. VERIFICATION OF PAVEMENT CONDITIONS AT THE START OF CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR. PAVEMENTS DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED TO CITY OF WESTLAKE SPECIFICATIONS AND IN A MANNER SATISFACTORY TO THE CITY ENGINEER.

26. CONTRACTOR SHALL SUBMIT TO CITY ENGINEER PRE-CONSTRUCTION VIDEO IN DVD FORMAT OF AREAS ALONG HILLIARD BLVD THAT WILL BE IMPACTED BY CONSTRUCTION AND HAUL ROUTES.

27. MAINTAIN 1'-6" VERTICAL CLEARANCE (OUTSIDE OF PIPE TO OUTSIDE OF PIPE) BETWEEN WATER LINES OR LATERALS AND SANITARY SEWER OR STORM DRAIN LINES OR LATERALS. IF A 1'-6" VERTICAL CLEARANCE CANNOT BE ACHIEVED, THE PIPES SHALL BE ENCASED PER UNIFORM STANDARD CONCRETE ENCASEMENT DETAIL (SEE SHEET C7.7).

28. EARTHWORK OPERATIONS SHALL BE OBSERVED, TESTED AND APPROVED BY AN OHIO LICENSED PROFESSIONAL ENGINEER SPECIALIZING IN THE FIELD OF GEOTECHNICAL ENGINEERING. CUT AND FILL SLOPES AT THE PERIMETERS OF THE WORK SHALL BE CERTIFIED AS STABLE BY THE GEOTECHNICAL ENGINEER. REPORTS TO BE SUBMITTED TO THE CITY.

29. UTILITY LATERAL LOCATIONS TO BE STAMPED INTO CURB AS DIRECTED BY CITY ENGINEER. CLEANOUT LIDS TO HAVE METAL INSERT LOCATORS.

30. GENERAL WATER LINE NOTES:

A. A TEN FEET MINIMUM HORIZONTAL SEPARATION (OUT-TO-OUT, CLEAR) WILL BE MAINTAINED BETWEEN THE WATER LINE AND SANITARY SEWER.

B. AN 18-INCH MINIMUM VERTICAL SEPARATION (OUT-TO-OUT, CLEAR) WILL BE MAINTAINED BETWEEN THE WATER LINE AND SANITARY SEWER AT ALL CROSSINGS.

C. A TEN FEET MINIMUM HORIZONTAL SEPARATION (OUT-TO-OUT, CLEAR) WILL BE MAINTAINED BETWEEN THE WATER LINE AND STORM SEWER.

D. AN 18-INCH MINIMUM VERTICAL SEPARATION (OUT-TO-OUT, CLEAR) WILL BE MAINTAINED BETWEEN THE WATER LINE AND STORM SEWER AT ALL CROSSINGS.

E. BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.

F. THE PROPOSED IMPROVEMENTS WILL PROVIDE A MINIMUM 35 PSI PRESSURE AT THE CURB STOP DURING NORMAL OPERATING CONDITIONS.

G. SEE SHEET C7.2 FOR CLEVELAND WATER DEPARTMENT NOTES.

H. IF 18-INCH VERTICAL CLEARANCE BETWEEN THE SEWERS AND WATERLINE CANNOT BE ACHIEVED THE PIPES SHALL BE ENCASED IN CONCRETE, PER THE UNIFORM STANDARD CONCRETE ENCASEMENT DETAIL.

31. MAINTAIN 1'-6" VERTICAL CLEARANCE (OUTSIDE OF PIPE TO OUTSIDE OF PIPE) BETWEEN SANITARY SEWER PIPES AND LATERALS AND STORM SEWER PIPES AND LATERALS. IF A 1'-6" VERTICAL CLEARANCE CANNOT BE ACHIEVED, THE PIPES SHALL BE ENCASED PER UNIFORM STANDARD CONCRETE ENCASEMENT DETAIL (SEE SHEET C7.7).

32. SERVICE LATERAL MINIMUM HORIZONTAL CLEARANCES (OUT-TO-OUT, CLEAR) SHALL BE AS FOLLOWS:
A. SANITARY AND WATER OF TEN (10) FEET
B. SANITARY AND STORM OF FIVE (5) FEET
C. STORM AND WATER OF FIVE (5) FEET

INSPECTION AND TESTING OF SANITARY SEWERS:

1. INSPECT INTERIOR OF PIPING TO DETERMINE WHETHER LINE DISPLACEMENT OR OTHER DAMAGE HAS OCCURRED. INSPECT AFTER APPROXIMATELY 24-INCHES OF BACKFILL IS IN PLACE, AND AGAIN AT COMPLETION OF PROJECT.

DEFECTS REQUIRING CORRECTION INCLUDE THE FOLLOWING:
ALIGNMENT: LESS THAN FULL DIAMETER OF INSIDE OF PIPE IS VISIBLE BETWEEN STRUCTURES.
DEFLECTION: FLEXIBLE PIPING WITH DEFLECTION THAT PREVENTS PASSAGE OF BALL OR CYLINDER OF SIZE NOT LESS THAN 95% OF PIPING DIAMETER.
CRUSHED, BROKEN, CRACKED, OR OTHERWISE DAMAGED PIPING.
INFILTRATION: WATER LEAKAGE INTO PIPING.
EXFILTRATION: WATER LEAKAGE FROM OR AROUND PIPING.

REPLACE DEFECTIVE PIPING USING NEW MATERIALS, AND REPEAT INSPECTIONS UNTIL DEFECTS ARE WITHIN ALLOWANCES SPECIFIED.
MAXIMUM ALLOWABLE DEFLECTION FOR FLEXIBLE PIPE IS 5% FOR DEFLECTION TESTING

TEST COMPLETED PIPING SYSTEMS ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. SCHEDULE TESTS AND INSPECTIONS WITH AT LEAST 24-HOURS ADVANCE NOTICE.

HYDROSTATIC TESTS: ALLOWABLE LEAKAGE IS MAXIMUM OF 100 GAL./INCH OF NOMINAL PIPE SIZE PER MILE OF PIPE, DURING A 24-HOUR TEST PERIOD.
CLOSE OPENINGS IN SYSTEM AND FILL WITH WATER.
PURGE AIR AND REFILL WITH WATER.
DISCONNECT WATER SUPPLY.
TEST AND INSPECT JOINTS FOR LEAKS.
MANHOLES: PERFORM HYDRAULIC TEST ACCORDING TO A.S.T.M. C-969.
TEST PIPING ACCORDING TO ASTM F1417

LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED. REPLACE LEAKING PIPING USING NEW MATERIALS, AND REPEAT TESTING UNTIL LEAKAGE IS WITHIN ALLOWANCES SPECIFIED.

CONTRACTOR IS TO MAKE NECESSARY PROVISIONS FOR THE NECESSARY OBSERVATION OF THE WORK BY CCDPW SANITARY ENGINEERING DIVISION IN ACCORDANCE WITH THE REQUIREMENTS OF CCDPW RULES AND REGULATIONS.

SEWERS AND MANHOLES ARE TO BE TESTED IN ACCORDANCE WITH THE CCDPW REQUIREMENTS PER THE CCDPW GENERAL NOTES. ALL SANITARY SEWER VIDEOS AND REPORTS SHALL BE SUBMITTED TO THE CCDPW AND CITY OF WESTLAKE FOR REVIEW UPON COMPLETION OF SEWER CONSTRUCTION.

2. ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

3. ALL CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR GRADING AND PAVING ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE 2019 EDITION OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS AND THE ORDINANCES OF THE CITY OF WESTLAKE. WHERE CONFLICTS OCCUR IN THE ABOVE, THE CITY OF WESTLAKE ENGINEER SHALL BE THE GOVERNING AUTHORITY.

4. COMPLETED SUBGRADE ALONG PRIVATE ROADS SHALL BE PROOF ROLLED BY A MINIMUM OF TWO PASSES IN EACH DIRECTION BY A LOADED TANDEM AXLE DUMP TRUCK PRIOR TO ANY PLACEMENT OF FILL OR PAVING PER THE GEOTECHNICAL REPORT. PROOF ROLL IS TO BE APPROVED BY THE CITY ENGINEER AND GEOTECHNICAL ENGINEER.

SITE PREPARATION, GRADING AND FILL NOTES:

1. ALL TREES, BRUSH, ROOTS, TOPSOIL, RUBBLE, ORGANICALLY CONTAMINATED OR OTHERWISE OBJECTIONABLE MATERIALS ENCOUNTERED ARE TO BE REMOVED FROM ROADWAY AREAS OF THE SITE AND AREAS THAT REQUIRE FILL PER THE GEOTECHNICAL REPORT.

2. SUBGRADE SECTORS WHICH WILL EXIST IN CUT AND THOSE WHICH ARE TO SUPPORT FILL ARE TO BE PROOF ROLLED WITH A MINIMUM 10 TON STATIC WEIGHT ROLLER OR APPROVED EQUIVALENT, MAKING TWO OVERLAPPING PASSES IN EACH OF TWO PERPENDICULAR DIRECTION PER THE GEOTECHNICAL REPORT. AREAS EXHIBITING INSTABILITY ARE TO BE UNDERCUT AND BACKFILLED ON A LIFT-BY-LIFT BASIS WITH EACH LIFT CAREFULLY COMPACTED.

3. SPECIAL ATTENTION SHALL BE PROVIDED AT LOW AREAS OF THE SITE WHERE THE ROADWAYS ARE NEAR THE EXISTING RETENTION POND AND WHERE THE ROADWAYS CROSS AN EXISTING SWALE AND BUILDING LOTS ARE FILLED IN LOW AREAS SUCH THAT THE SUBGRADE IS ADEQUATELY PREPARED AND ENGINEERED FILL IS PROPERLY PLACED PER THE GEOTHECHNICAL ENGINEER RECOMMENDATIONS TO PREVENT FUTURE SETTLEMENT. STABILIZATION MATERIALS MAY BE REQUIRED BY THE GEOTECHNICAL ENGINEER AT THESE LOCATIONS BASED UPON EXISTING CONDITIONS ENCOUNTERED AFTER AREAS ARE PROPERLY DRAINED AND TOPSOIL AND UNSUITABLE MATERIALS ARE REMOVED.

4. IF UNSTABLE SUBGRADE SECTORS CANNOT BE STABILIZED BY EXCAVATION AND RE-COMPACTION, THEN CRUSHED STONE OR SIMILAR COARSE AGGREGATE MATERIALS SHALL BE ROLLED INTO THE SUBGRADE UNTIL A FIRM SUBGRADE REACTION IS ACHIEVED PER THE GEOTECHNICAL REPORT.

5. THE GEOTECHNICAL ENGINEER SHALL DETERMINE ON SITE OR OFF SITE IMPORTED MATERIAL THAT CAN BE USED FOR ENGINEERED FILL. ALL FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.

6. THE PROPOSED ENGINEERED FILL MATERIALS ARE TO BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES IN LOOSE MEASURED THICKNESS. EACH LIFT IS TO BE COMPACTED UNTIL ITS DRY DENSITY IS NOT LESS THAN 98% OF THE MAXIMUM DRY DENSITY BY ASTM D698 PER THE GEOTECHNICAL REPORT.

7. THE EARTHWORK PROGRAM SHOULD BE CONDUCTED UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER. THE IN-PLACE DENSITIES ACHIEVED ARE TO BE VERIFIED BY TESTS.

8. COPIES OF THE GEOTECHNICAL REPORTS NEED TO ALSO BE SUBMITTED TO THE CITY OF WESTLAKE.

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REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION
GENERAL NOTES
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
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SHEET NO.
C0.1

PPN 216-24-001
THE LAKEWOOD COUNTRY CLUB COMPANY
A.F.N. 201210160170 C.C.R.
REMAINDER PARCEL "A"

PPN 216-25-006
MFPI, LLC
AFN 202307110330

THE LAKEWOOD COUNTRY CLUB COMPANY
VOL. 3392, PG. 220 C.C.R.

PARCEL B-3
PPN 216-25-011
THE LAKEWOOD COUNTRY CLUB COMPANY
VOL. 14295 PAGE 627 C.C.R.

DEVONSHIRE ESTATES
VOL. 248 PG. 56 C.C.M.R.

PPN 216-23-019
JOHN SAINT WES
WESTLAKE, LLC
AFN 200312310873

PPN 216-23-018
29995 HILLIARD
BOULEVARD, LLC.
AFN 200410011002

PPN 216-22-043
PRADEEP PINTO &
SUDHA CHAKRAPANI
AFN 201110260614

PPN 216-22-078
MATTHEW C. VARNDELL
AFN 202206300090

PARCEL "A"
PPN 216-22-079
CRISTINE E. BHAIJI TRUSTEE
AFN 202012290206

PARCEL "B"

PPN 216-22-044
JOYCE & JOHN MAXEY
AFN 202309140373

PPN 216-22-077
LLEOWELL M. GARCIA
TRUSTEE

CHAIRMAN'S ROWE
VOL. 268 PG. 22 C.C.M.R.

HILLIARD BOULEVARD 100'

DEVONSHIRE DRIVE 60'

CHAIRMAN'S ROWE 60'

SCALE
1 INCH = 50 FEET
24 x 36
SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION
SITE EXISTING CONDITIONS PLAN
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Voice 440.884.5151 | Fax 440.884.1434
www.neffassoc.com

SHEET NO.
C1.0

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL
	10-17-25	CITY PLANNING DEPT. REVIEW
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

N:\LAND DEVELOPMENT\Proj\14523E The Greens Subdivision\AutoCAD\14523E-PLAN.dwg, 4/28/2026 11:15:36 AM, KKraus

PPN 216-24-001
THE LAKEWOOD COUNTRY CLUB COMPANY
A.F.N. 201210160170 C.C.R.
REMAINDER PARCEL "A"

PPN 216-25-006
MFPI, LLC
AFN 202307110303

THE LAKEWOOD COUNTRY CLUB COMPANY
VOL. 3392, PG. 220 C.C.R.

PARCEL B-3
PPN 216-25-011
THE LAKEWOOD COUNTRY CLUB COMPANY
VOL. 14295 PAGE 627 C.C.R.

DEVONSHIRE ESTATES
VOL. 248 PG. 56 C.C.M.R.

PPN 216-25-019
3070 SAINT IVES
WESTLAKE, LLC
AFN 200312310873

PPN 216-25-018
29930 HILLIARD
BOULEVARD, LLC.
AFN 200410011002

PPN 216-22-043
PRADEEP PINTO &
SUDHA CHAKRAPANI
AFN 201110260614

PPN 216-22-078
MATTHEW C. VARNDELL
AFN 202206300090

PARCEL "A"
PPN 216-22-079
CRISTINE E. BHAIJI TRUSTEE
AFN 202012290206

PARCEL "B"

PPN 216-22-044
JOYCE & JOHN MAXEY
AFN 202309140373

PPN 216-22-077
LLEOWELL M. GARCIA
TRUSTEE

HILLIARD BOULEVARD 100'

DEVONSHIRE AVENUE 60'

CHAIRMAN'S ROWE 60'
CHAIRMAN'S ROWE
VOL. 268 PG. 22 C.C.M.R.

5' sidewalk easement

S/L C1
S/L 71
S/L 13
S/L 12

B.M. 1
B.M. 2

NORTH
SCALE
1 INCH = 50 FEET
24 x 36 SHEETS ONLY

LEGEND

- EX. UTILITY (TO BE REMOVED)
- EX. CURB/SAWCUT (TO BE REMOVED)
- EX. TREE(S) (TO BE REMOVED)
- EX. STRUCTURE/ FOUNDATION (TO BE REMOVED)
- EX. PAVEMENT, CURBS, AND BOLLARDS (TO BE REMOVED)

SITE DEMOLITION PLAN

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

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440.845.2100 | Fax 440.845.2144
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SHEET NO.
C1.1

STORM WATER POLLUTION PREVENTION PLAN

CERTIFICATION

I, THE UNDERSIGNED, DO HEREBY CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

OWNER/PERMITTEE SIGNATURE _____ DATE _____

DUTY TO INFORM CONTRACTORS AND SUBCONTRACTORS:

I, THE UNDERSIGNED, DO HEREBY ASSENT TO AND ACKNOWLEDGE HAVING REVIEWED AND UNDERSTAND THE TERMS AND CONDITIONS OF THIS STORM WATER POLLUTION PREVENTION PLAN AND THE TERMS AND CONDITIONS OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY NPDES GENERAL PERMIT.

GENERAL CONTRACTOR

GENERAL CONTRACTOR CONTACT SIGNATURE _____ DATE _____

SWP3 EXISTING SITE MAP

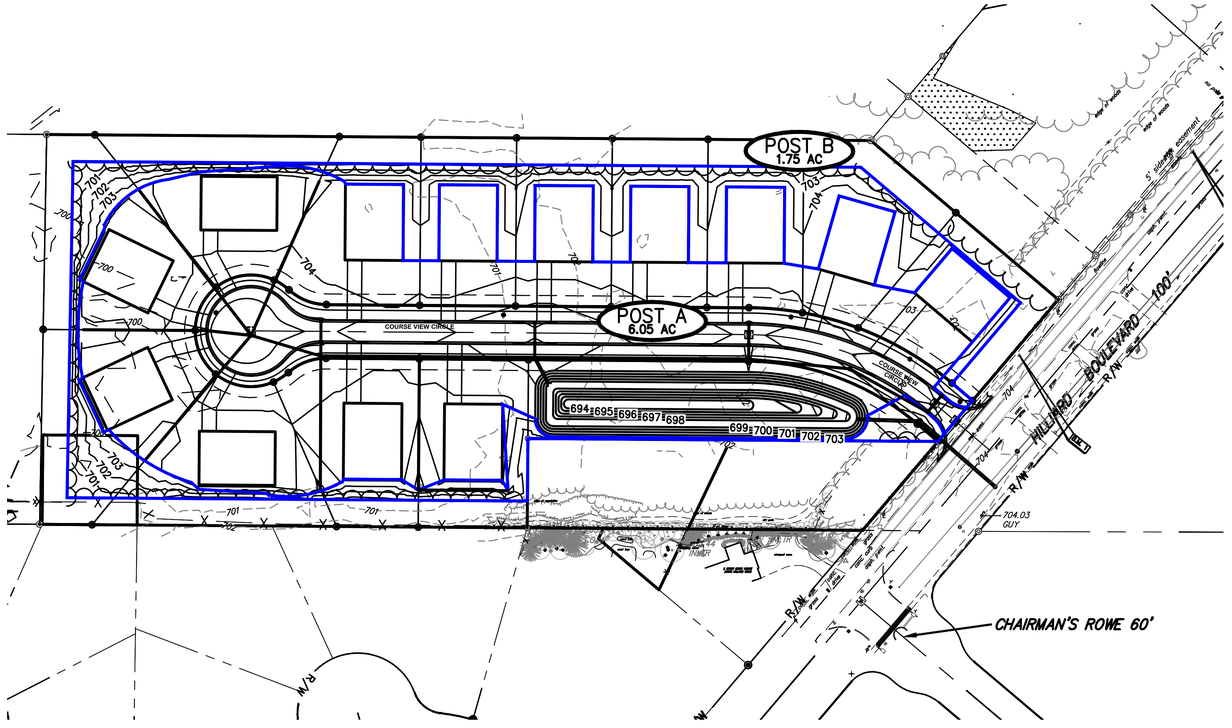
SOILS MAP

NOTES:

THE LOCATIONS OF ALL EROSION AND SEDIMENT CONTROL PRACTICES, INCLUDING IF APPLICABLE BUT NOT LIMITED TO THE LOCATION OF AREAS LIKELY TO REQUIRE TEMPORARY STABILIZATION, SEDIMENT AND STORM WATER MANAGEMENT BASINS, PERMANENT STORM WATER MANAGEMENT PRACTICES, AREAS DESIGNATED FOR STORAGE OF MATERIALS, THE LOCATION OF DESIGNATED CONSTRUCTION ENTRANCES, AND THE LOCATION OF ANY IN-STREAM ACTIVITIES CAN BE FOUND ON THE SHEETS CONTAINED WITHIN THIS STORM WATER POLLUTION PREVENTION PLAN.

SOILS LEGEND:

Ct - Condit silty clay loam
MgA - Mahoning silt loam, 0-2% slopes



SWP3 PROPOSED SITE MAP

AUTHORITY FOR AUTHORIZING AND AMENDING THE SWP3

NEFF & ASSOCIATES
6405 YORK ROAD
PARMA HEIGHTS, OHIO 44130
PHONE: (440) 884-3100
FAX: (440) 884-3104
CONTACT: JEFFREY PLAUTZ, P.E.

STATE OF OHIO
JEFFREY M. PLAUTZ
E-71328
REGISTERED
PROFESSIONAL ENGINEER

JEFFREY M. PLAUTZ - REG. ENGINEER No. 71328 — 04/27/26 DATE

OHIO Utilities Protection SERVICE
Call Before You Dig
1-800-362-2764
CALL BEFORE YOU DIG
Also call: OGPUPS @ 1-800-925-0988 (Ohio Oil & Gas Underground Protection Service)
-- or dial 8-1-1--

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-SWP3	KMK	GHW	14523E

40 20 10 0
NORTH
SCALE
1 INCH = 20 FEET
24 x 36 SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SWP3 TITLE SHEET

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
(440) 884-3100 | Fax (440) 884-3104
www.neffassocs.com

SHEET NO.
C2.0

SITE DESCRIPTION

Project Name and Location: **The Greens Subdivision**
Roadway A, North of Miles Road
City of Westlake, County of Cuyahoga, State of Ohio

Owner Name and Address: **SWIPE USA, LLC**
xxxxx
Cleveland, Ohio 4xxxx

Site Description: (Nature and Types of Construction Activities)

This project will consist of a **13 lot subdivision on a 9.3 Ac. lot.**
13 Single Family Residential Homes.
Soil disturbing activities will include: **clearing and grubbing; installing stabilized construction entrances, perimeter, and other erosion and sediment controls; grading; excavation for the storm sewer, utilities and home foundations; construction of roadway along with curb and gutter; and preparation for final planting and seeding as shown on the Storm Water Pollution Prevention Plan.**

Site Area

The site drainage area is approximately 7.80 acres, of which 7.80 acres will be disturbed by construction activities.

Impervious Area (Acres)

Pre-Construction	Post-Construction
0.00 Ac. (Impervious)	2.64 Ac. (Impervious)
7.80 Ac. (Pervious)	5.16 Ac. (Pervious)
7.80 Ac. (Total)	7.80 Ac. (Total)
0.0% (Impervious)	33.8% (Impervious)

Runoff Coefficient

Pre-Development Run-off Coefficient – 77

	Area (Ac.)	Run-off Coefficient	Area x Run-off Coefficient
Open Space – Good	0.00	80	0.0
Woods – Good	7.80	77	600.6
Impervious	0.00	98	0.0
	7.80 Total		600.6 Total

Post-Development Run-off Coefficient – 86

	Area (Ac.)	Run-off Coefficient	Area x Run-off Coefficient
Open Space – Good	5.16	80	412.8
Woods – Good	0.00	77	0.0
Impervious	2.64	98	258.7
	7.80 Total		671.5 Total

Soil Types:

A: Ct 74.2% of Site
B: MgA 25.8% of Site
C: ____ % of Site
D: ____ % of Site
E: ____ % of Site
F: ____ % of Site

6. Install utilities, storm sewer, etc.
7. Apply stone to roadways.
8. Complete grading and install permanent seeding.
9. Complete final paving.
10. All temporary sediment controls shall be removed upon permanent stabilization.
11. Reseed any disturbed areas.
12. Pond to be drained, remove accumulated sediment, an as-built survey completed by a licensed surveyor must be submitted to the Village.

Prior Land Use

The site was previously **unused, wooded land.**
No existing wetlands are present on the site.

Sequence of Major Activities

Implementation of ALL necessary erosion, sediment, non-sediment pollutant controls, storm water management practices or facilities, and post-construction best management practices to be employed during each operation of the sequence.

The order of activities will be as follows:

1. **Install stabilized construction entrance, boundary silt fence & sediment pond, wetland protection as required.**
2. **Strip & stockpile topsoil.**
3. **Stabilize denuded areas & stockpiles within 7 days of last construction activity in that area.**
4. **Commence earthwork activities.**
5. **Install utilities, storm sewer, etc.**
6. **Apply stone to roadways.**
7. **Complete grading and install permanent seeding.**
8. **Complete final paving.**
9. **All temporary sediment controls shall be removed upon permanent stabilization.**
10. **Reseed any disturbed areas.**
11. **Pond to be drained, remove accumulated sediment, an as-built survey completed by a licensed surveyor must be submitted to the City**

Name of Receiving Waters

The site will drain into **an unnamed creek which is a tributary of Tinkers Creek Watershed.**

GENERAL NOTES:

Notice of Intent (NOI) must be submitted to the Ohio EPA for NPDES Permit 21 days prior to the start of clearing and grading.

All construction activities must comply with all local erosion and sediment control regulations.

All erosion and sediment control practices must meet the standards and specifications of the current edition of the Ohio Rainwater and Land Development Manual.

Other erosion control items may be necessary due to environmental conditions.

Regular inspection and maintenance will be provided for all erosion and sediment control practices. Inspections are to be performed until the Notice of Termination (N.O.T.) is filed. Permanent records of maintenance and inspections must be kept throughout the construction period and for 3 years after the (N.O.T.) is filed with the Ohio E.P.A. Inspections must be made a minimum of once every 7 days and immediately after storm events greater than 0.5 inches of rain in a 24 hour period. Provide name of inspector, major observations, date of inspection and corrective measures taken.

Sediment Ponds/Traps and Perimeter Controls shall be implemented as a first step of grading and within 7 days from the start of grubbing and shall continue to function until upland areas are stabilized.

The contractor shall use erosion control measures as necessary to prevent sediment movement into areas designated as wetlands.

No solid or liquid waste shall be discharged into storm water runoff.

The contractor shall use indicated area designated for the storage or disposal of solid, sanitary, and toxic wastes, including dumpster, cement truck washout, and vehicle refueling areas.

Cast iron catch basins, grates, and inlet covers with messages such as, "Dump No Waste, Drains to Waterways" shall be utilized as a non-structural best management practice that promotes pollution prevention and conservation awareness. All catch basin grates and inlet covers shall be specified with an equivalent message.

SEDIMENT AND EROSION CONTROLS

Non-Structural Preservation Methods

Practices shall be used which preserve the existing natural condition as much as possible. Such practices may include: preserving riparian areas adjacent to surface waters of the State, preserving existing vegetation and vegetative buffer strips, phasing construction operations in order to minimuze the amount of disturbed land at any one time, and designation of tree preservation areas or other protective clearing or grubbing practices. The recommended buffer that operators should leave undisturbed along a surface water of the State is 25 feet as measured from the ordinary high water mark of the surface water.

Erosion Control Practices

All disturbed areas of the site shall be protected by stabilization practices. Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances, and the use of alternative ground cover.

Permanent Stabilization

The timing specifications for the permanent seed can be found in the table below. The permanent seed shall be applied as per the permanent seeding specifications, see sheet **C2.6**. Note that 70% vegetative density is required on all disturbed soil areas for stabilization.

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a surface water of the state and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Temporary Stabilization

The timing specifications for the temporary seed can be found in the table below. The temporary seed shall be applied as per the temporary seeding specifications, see sheet **C2.6**. Areas of the site which are to be paved will be temporarily stabilized by applying **stone sub-base** until **asphalt** pavement can be applied. Note that 70% vegetative density is required on all disturbed soil areas for stabilization.

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed areas within 50 feet of a surface water of the State and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 14 days
For all construction activities, any disturbed areas that will be dormant for more than 14 days but less than one year, and not within 50 feet of a surface water of the State	Within seven days of the most recent disturbance within the area For residential subdivision, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s)
Disturbed areas that will be idle over winter	Prior to onset of winter weather

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed.

Permanent Stabilization of Conveyance Channels

Operators shall undertake special measures to stabilize channels and outfalls and prevent erosive flows. Measures may include: seeding, dormant seeding, mulching, erosion control matting, sodding, riprap, natural channel design with bioengineering techniques or rock check dams.

Runoff Control Practices

Measures shall be implemented which control the flow of runoff from disturbed areas so as to prevent erosion from occurring. Such practices may includes: rock check dams, pipe slope drains, diversions to direct flow away from exposed soils, and protective grading practices. These practices shall divert runoff away from disturbed areas and steep slopes where practicable. Velocity dissipation devices shall be placed at discharge locations along the length of any outfall channel to provide non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.

Sediment Control Practices

Structural practices shall be used to control erosion and trap sediment from a site remaining disturbed for more than 14 days, which store runoff allowing sediments to settle and/or divert flows away from exposed soils or otherwise limit runoff from exposed areas. Such practices may include, among others: sediment settling ponds, silt fences, earth diversion dikes or channels which direct runoff to a sediment settling pond, and storm drain inlet protection. All sediment control practices must be capable of ponding runoff in order to be considered functional. Earth diversion dikes or channels alone are not considered a sediment control practice unless those are used in conjuction with a sediment settling pond.

Sediment Control Practices: (Implemented in this plan)

Sediment Settling Ponds	X
Silt Fences	X
Earth Diversion Channels	
Other	X

Timing

Sediment control structures shall be functional throughout the course of earth disturbing activity. Sediment basins and perimeter sediment barriers shall be implemented prior to grading and within seven days from the start of grubbing. They shall continue to function until the up slope development area is restabilized. As construction progresses and the topography is altered, appropriate controls must be constructed or existing controls altered to address the changing drainage patterns.

Sediment Settling Ponds

A sediment settling pond is required for any one of the following conditions:

- Concentrated storm water runoff (e.g., storm sewer or ditch)
- Runoff from drainage areas, which exceed the design capacity of silt fence or other sediment barriers
- Runoff from drainage areas that exceed the design capacity of inlet protection
- Runoff from common drainage locations with 10 or more acres of disturbed land.

Silt Fence and Diversions

Sheet flow runoff from denuded areas shall be intercepted by silt fence or diversions to protect adjacent properties and water resources from sediment transported via sheet flow. Where intended to provide sediment control, silt fence shall be placed on a level contour downslope of the disturbed area.

Inlet Protection

Inlet protection shall be used to minimized sediment laden water entering the active storm sewer system.

Surface Waters of the State Protection

If construction activities disturb areas adjacent to surface waters of the State, structural practices shall be implemented on site to protect all adjacent surface waters of the State from the impacts of sediment runoff. No structural sediment controls (e.g., the installation of silt fence or a sediment settling sediment pond) shall be used in a surface water of the State. For all construction activites immediately adjacent to surface waters of the State, it is recommended that a setback of at least 25-feet, as measured from the ordinary high water mark of the surface water, be maintained in its natural state as a permanent buffer.

POST-CONSTRUCTION STRUCTURAL BMPs

Vegetative Controls	(Check those that apply to this SWPP Plan)
Forested Buffer Strip	X
Constructed Wetlands	
Swales	
Turf Reinforcement Mats	
Preserving Natural Vegetation	X
Rain Gardens	
Grass-Lined Channels and Swales	X
Grass Filter Strips	X
Filter Berms	
Other	

Infiltration Controls	
Infiltration Trenches	
Dry Wells	
Sand & Organic Filters	
Porous Pavement	
Infiltration Drainfields	
Infiltration Basins	
Other	

Treatment Controls	
Separators	
Filtration Devices	
Catch Basin Inserts	
Catch Basin Skimmers	
Hydrodynamic Separators	
Bioretention	
Other	

POST-CONSTRUCTION NON-STRUCTURAL BMPs

	(Check those that apply to this SWPP Plan)
Education Materials	
School Storm Water Programs	
Public Meeting & Citizen Groups	
Illicit Discharge Detection Programs	
Regulatory Ordinances	
BMP Operation & Maintenance Requirements	
Street Sweeping, Catch Basin Cleaning	
Yardwaste Controls	
Recycling & Pollution Prevention Programs	
Alum Injection	
On-Lot Treatment	
Buffer Zones	
Open Space Design	
Urban Forestry	
Conservation Ordinances	
Eliminating Curbs and Gutters	
Green Parking	
Alternative Turn-A-Arounds	
Alternative Pavers	
Zoning	
Other	

POST-CONSTRUCTION STRUCTURAL BMPs (cont'd)

Runoff Controls	(Check those that apply to this SWPP Plan)
Minimize Clearing	X
Land Grading	X
Permanent Diversions	
Detention Basin	
Retention Basin	
Sediment Basin	X
Water Quality Pond	
Wet Ponds	
Dry Extended Detention Ponds	X
Construction Entrances	X
Rip-Rap	X
Check Dams	
Stabilize Drainage Ways	X
Dust Control	X
Level Spreader	X
Conveyance Channel	
Outlet Protection	X
Subsurface drainage	
Other	

Erosion Controls	
Stabilize Exposed Soil	X
Chemical Stabilization	
Mulching	X
Permanent Seeding	X
Sodding	
Soil Roughening	
Other	

Stream Channel Construction and Restoration	
Eddy Rocks	
Deflectors	
Gravel Riffle	
Multi-Stage Channel	
Rock Check	
Streambank Stabilization	
Vortex Rock Weir	
Other	

Description and Rationale for the Post-Construction BMP(s) Used in This Plan

The major BMP's being used in this plan is a dry extended detention pond. It is being used because of its overall effectiveness and ease of maintenance.

POST-CONSTRUCTION STORM WATER MANAGEMENT

ANTICIPATED IMPACTS ON WATER QUALITY, ETC.

(Reference p. 18 of Ohio EPA's NPDES Permit) **(April 23, 2018)**

Post-construction practices shall provide for perpetual maintenance of runoff quality and quantity.

1. Refer to Maintenance & Inspection Procedure section.
2. Runoff quantity will be controlled by an on site basin.
3. Runoff quality during construction will be maintained by on-site erosion and sediment control practices to allow for accumulation of sediment prior to discharge.
4. Refer to description of post-construction BMPs listed below.
5. Maintenance plan shall ensure that pollutants collected within structural post-construction practices will be disposed of in accordance with local, state, and federal regulations.

POST-CONSTRUCTION BMP WATER QUALITY DESIGN

The Ohio EPA's general permit for construction requires the implementation of post-construction BMPs on all projects where the larger common plan of development or site disturbs one or more acres.

For new development the Ohio EPA's general construction permit requires that structural post-construction BMPs be provided on any projects where the larger common plan of development or site will result in 2 or more acres of disturbance. Structural BMPs must provide extended detention of the water quality volume. In addition, an extra 20% of the WQv must be provided within the area of the BMP where pollutants will accumulate to provide storage for these pollutants.

For redevelopment projects, the Ohio EPA's general permit requires that either (a) a 20% net reduction of the site's volumetric runoff coefficient, (b) structural BMPs be provided to treat 20% of the WQv

New Development

Drainage Area = 6.05 Acres
Pervious Area = 3.41 Acres
Impervious Area = 2.64 Acres
Imperviousness (i) (Tributary to Basin) = 2.64/6.05 = 0.436
Volumetric Runoff Coefficient (Rv) = 0.05+0.9(i) = 0.443
Precipitation Depth (P) = 0.90 Inches

Water Quality Volume (WQv) = Rv*P*A/12
WQv = 0.443*0.90*6.05/12 = 0.201 Acre-Feet = 8,751 Cubic Feet

Additional 20% of WQv for sediment storage
WQv * 0.20 = 1,750 Cubic Feet
8,751 Cubic Feet + 1,750 Cubic Feet = 10,501 Cubic Feet

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-SWP3	KMK	GHW	14523E

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION
SWP3 PLAN NOTES
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

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SHEET NO.
C2.1

OTHER CONTROLS

Non–Sediment Pollutant Controls

Non–sediment pollutant sources, which may be present on a construction site, include paving operations, concrete washout, structure painting, structure cleaning, demolition debris disposal, drilling and blasting operations, material storage, slag, solid waste, hazardous waste, contaminated soils, sanitary and septic wastes, vehicle fueling and maintenance activities, and landscaping operations.

Handling of Toxic or Hazardous Materials

All hazardous and toxic waste materials will be disposed of in the manner specified by Local or State regulation or by the manufacturer. The individual who manages the day–to–day site operations will be responsible for seeing that these practices are followed. No toxic or hazardous wastes shall be disposed into storm drains, septic tanks, or by burying, burning, or mixing the wastes.

Waste Disposal

All waste materials will be collected and stored in a securely lidded, leak–proof metal dumpster rented from a licensed solid waste management company. The dumpster will meet all Local, City and State solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of twice per week or more often if necessary, and the trash will be hauled off–site. No construction waste materials will be buried onsite. Notices stating these practices will be posted in the office trailer. The individual who manages the day–to–day site operations will be responsible for seeing that these procedures are followed.

Sanitary Waste Disposal

All sanitary waste will be collected from the portable units a minimum of three times per week by a licensed sanitary waste management contractor, as required by local regulation.

Clean Hard Fill

All bricks, hardened concrete, and soil waste must be free from contamination which may leach constituents to waters of the State. Any clean construction wastes that will be disposed into the property must meet all Local, City, and State regulations.

Construction and Demolition Debris

All construction and demolition debris wast will be disposed of in an Ohio EPA approved construction and demolition debris landfill as required by Ohio Revised Code 3714.

Off–Site Vehicle Tracking

Off–site vehicle tracking sediment shall be minimized. Construction vehicles are limited to the construction access roads noted on the plan. A stabilized construction entrance will be provided to help reduce vehicle tracking of sediments. All paved streets adjacent to the site will be swept daily to remove any excess mud, dirt or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

Open Burning

The contractor shall only perform on–site open burning as a means of waste disposal as allowed per Local, State, and Federal regulations.

Dust Control

Construction traffic must enter and exit the site at the stabilized construction entrance(s). Water trucks will be used as needed during construction to reduce dust generation. Dust control must be provided to a degree that is acceptable and in compliance with applicable local and state dust control regulations. After construction, the site will be stabilized (as described elsewhere in this plan), which will reduce the potential for dust generation.

Product Specific Practices

The following product specific practices will be followed onsite:

Fertilizers

Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. All contaminated soils must be treated and/or disposed in Ohio EPA approved solid waste management facilities or hazardous waste treatment, storage or disposal facilities.

Paints

The site superintendent responsible for the day–to–day site operations, will be the spill prevention and cleanup coordinator. He will designate site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer on–site.

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to manufacturers' instructions or State and Local regulations.

Concrete Trucks

Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site. A concrete wash–out pit shall be by the contractor in order to control concrete wash water.

INVENTORY FOR POLLUTION PREVENTION PLAN

The materials or substances listed below are expected to be present onsite during construction:

Concrete	Fertilizers
Detergents	Petroleum Based Products
Paints (enamel and latex)	Cleaning Solvents
Metal Studs	Wood
Asphalt	

SPILL PREVENTION

Material Management Practices

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project:

- An effort will be made to store only enough product required to do the job.
- All materials stored on–site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The site superintendent will inspect daily to ensure proper use and disposal of materials on–site.

Hazardous Products

These practices are used to reduce the risks associated with hazardous materials:

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data will be retained; they contain important product information.
- If surplus product must be disposed of, manufacturers' or Local and State recommended methods for proper disposal will be followed.

Emergency Contact Information

In the event of a spill of petroleum fuel over 25 gallons, the contractor shall contact the Ohio EPA at 1–800–282–9378, and the local fire department, immediately.

Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area on–site. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate State or Local government agency, regardless of the size.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

TIMING OF CONTROLS/MEASURES

As indicated in the Sequence of Major Activities, stabilized construction entrance, silt fence, and sediment basin will be constructed prior to clearing or grading of any other portions of the site. Areas where construction activity temporarily ceases for more than 14 days will be stabilized with a temporary seed and mulch within 7 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and mulch. After the entire site is stabilized, the accumulated sediment will be removed from the basin.

Disturbed areas that are to remain dormant for over 1 year or at final grade shall have permanent erosion controls applied within 7 days.

SOIL PROTECTION CHART

STABILIZATION TYPE	J	F	M	A	M	J	J	A	S	O	N	D
PERMANENT SEEDING			●	●	●	*	*	*	●	●		
DORMANT SEEDING	●	●	●							●	●	●
TEMPORARY SEEDING			●	●	●	*	*	*	●	●		
SODDING			**	**	**	**	**	**	**			
MULCHING	●	●	●	●	●	●	●	●	●	●	●	●

* – IRRIGATION NEEDED
** – IRRIGATION NEEDED FOR 2–3 WEEKS AFTER SOD IS APPLIED

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TEMPORARY CONSTRUCTION ENTRANCE																								
TEMPORARY CONTROL MEASURES																								
SEDIMENT CONTROL BASINS																								
STRIP & STOCKPILE TOPSOIL																								
ROUGH GRADE																								
STORM FACILITIES																								
SITE CONSTRUCTION																								
PERMANENT CONTROL STRUCTURES																								
FINISH GRADING																								
LANDSCAPING/SEED/FINAL STABILIZATION																								

1) CONTRACTOR SHALL UPDATE THE TABLE BY DATING THE APPLICABLE ACTIVITIES AS PROJECT PROGRESSES.
2) TIME SCHEDULE MUST COINCIDE WITH SEQUENCE OF CONSTRUCTION.

MAINTENANCE/INSPECTION PROCEDURES

Erosion and Sediment Control Inspection and Maintenance Practices

These are the inspection and maintenance practices that will be used to maintain erosion and sediment:

- Less than **90%** of the site will be denuded at one time.
- All control measures will be inspected at least once each week and following any storm event of 0.5 inches or greater.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report.
- Built up sediment will be removed from silt fence when it has reached one–third the height of the fence.
- Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- The sediment basin will be inspected for depth of sediment, and built up sediment will be removed when it reaches 40 percent of the design capacity or at the end of the job.
- Diversion dikes will be inspected and any breaches promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector. The site superintendent will select individuals who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance report.

Non–Stormwater Discharges

It is expected that the following non–stormwater discharges will occur from the site during the construction period:

- Water from water line flushings.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater (from dewatering excavation).
- All non–stormwater discharges will be directed to the sediment basin prior to discharge.
- There shall be no sediment–laden discharges to surface waters resulting from dewatering activities. It is recommended that if a trench or ground water contains sediment that it must pass through a sediment settling pond or other equally effective sediment control device prior to being discharged from the construction site.

Dewatering Procedures

Should dewatering be required, e.g., from trenches, etc,. during construction, all water shall be pumped to the temporary sediment basins, if possible, before being released to downstream channels, storm sewers, etc. If a temporary sediment basin is not shown on the plan, or not achievable for dewatering, the water shall be pumped into a sediment trap or through sediment bags onto a relatively flat surface away from inlet basins, streams, etc.

POST–CONSTRUCTION INSPECTION PROCEDURE

1. The property owner or its authorized representative(s) is responsible for the inspection of the newly installed structures for outlet damage, proper flow, and sediment accumulations.
2. Maintenance costs, if inspected by the owner or the owner's representative(s), will be paid by the owner.
3. The site shall be maintained per the Post–Construction Maintenance Plan following the submittal of the NOT.

Regular inspections, especially following major storm events, will require an inspection report that shall be kept by the owner and submitted, if required, to the **City of Westlake Engineer.**

VEGETATION MAINTENANCE PLAN

This is a suggested schedule only, Vegetative needs may vary depending on site conditions.

Some maintenance needs include:

–pH adjustment (as required)
–pruning
–pest control
–reseeding (in particular after maintenance of forebay and micro pool if disturbances have occurred)
–thatch and weed removal

Thatch removal includes the following unwanted woody seedlings in shoreline areas:

–Cottonwood (Populous deltoides)
–Willow (Salix spp.)
–Silver Maple (Acer saccharinum)

Weed removal includes the following species detrimental to wetland plantings:

–Common Reed (Phragmites australis)
–Cattails (Typha spp.)
–Purple Loosestrife (Lythrum salicaria)

When removing the Purple Loosestrife it is important to remove the large root systems as well as the plant prior to flowering (June through September). The plant and its parts should be immediately placed in a bag to prevent further spread of the species. If this procedure is not possible, regular remove the flower heads before seeds are dispersed.

If Weed growth exceeds 10" in height in seeded areas trim or mow to 4". Do not cut areas where live plants were installed.

LONG TERM MAINTENANCE PLAN

Typical Maintenance Activity For The Extended Water Quality Basin

The **homeowner's association** will be responsible for the long term maintenance of the basin.

This is a suggested schedule only, depending on rainfall and site conditions, the need for maintenance my vary.

Monthly: Clean trash and debris from outlet structure. Address any accumulation of hydrocarbons.

Annually: Inspect embankment and outlet structure for proper flow. Remove woody vegetation (See Vegetation Maintenance) and fix any eroding areas. Monitor sediment accumulations in forebay and micropool.

Semi–Annually: Inspect wetland areas for invasive plants. (See Vegetation Maintenance)

3–7 Years: Remove sediment from forebays and micropools as needed.*

15–20 Years: Monitor sediment throughout entire basin and clean as the basin becomes eutrophic or basin volume is reduced significantly.

* This preservation operation should be scheduled when the forecast calls for dry weather, and in conjunction with any scheduled vegetation maintenance to allow all disturbed or damaged areas to be properly restored.

REV NO	DATE	DESCRIPTION
	04–27–26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-SWP3	KMK	GHW	14523E

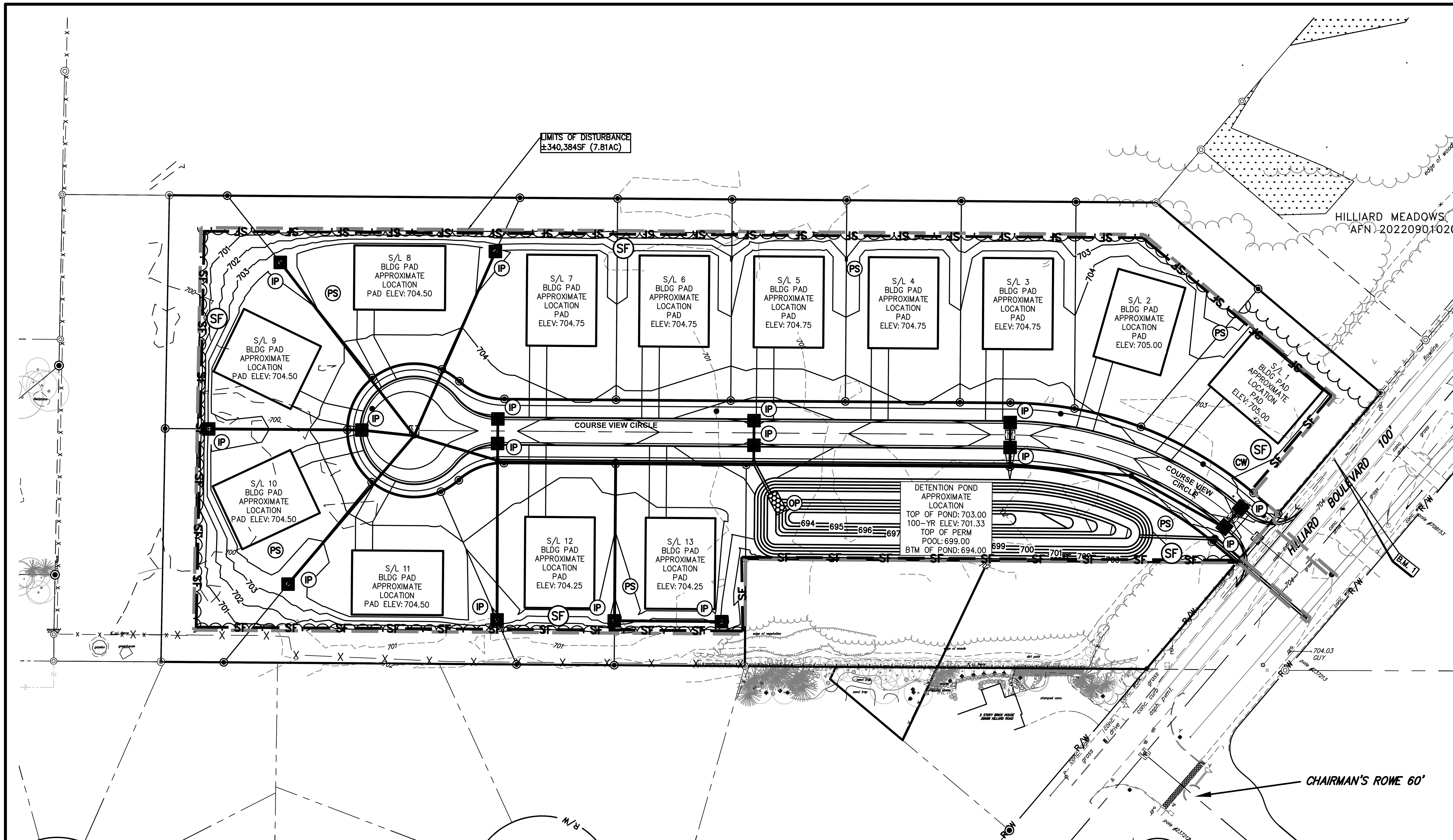
THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SWP3 PLAN NOTES

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

SHEET NO.
C2.2



SWP3 LEGEND

Symbol		Description
	OP	ROCK OUTLET PROTECTION
— X — X —	CF	CONSTRUCTION FENCE
—CL—	CL	CONSTRUCTION LIMITS (LIMITS OF DISTURBANCE)
— SF —	SF	SILT FENCE
	IP	STORM DRAIN INLET PROTECTION
—FS—FS—	FS	FILTER SOCK
	CW	CONCRETE WASHOUT
	PS	PERMANENT SEEDING

NORTH

SCALE
1 INCH = 50 FEET
24 x 36
SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

STORMWATER POLLUTION PREVENTION PLAN

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
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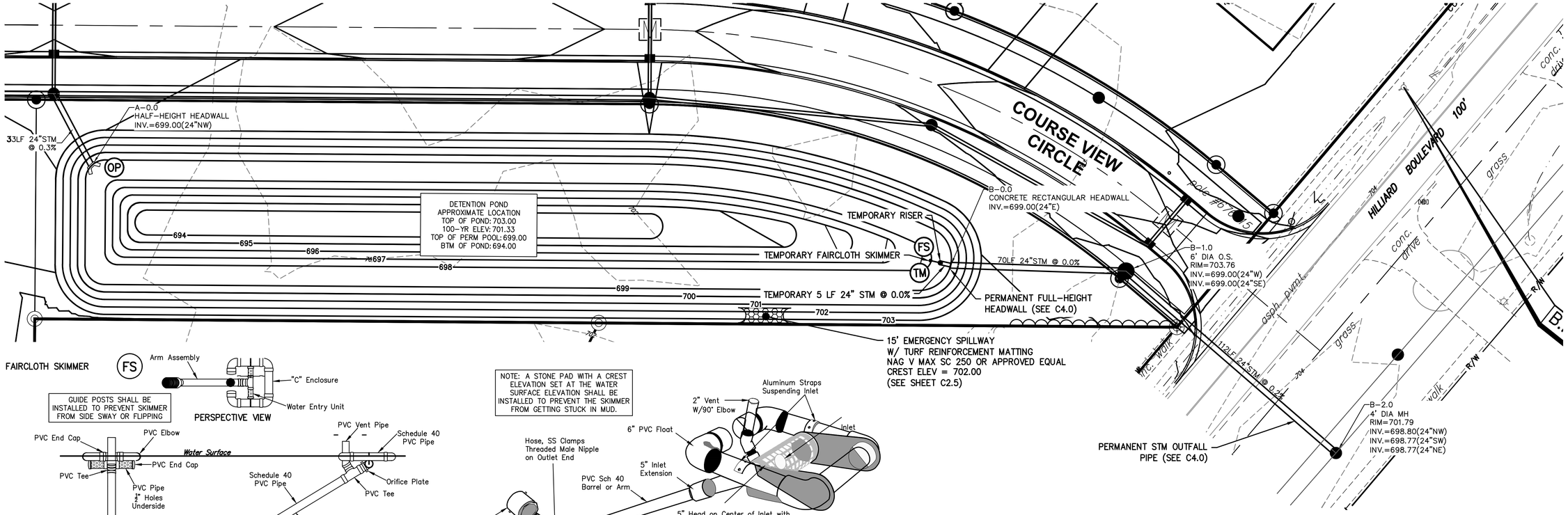
DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-SWP3	KMK	GHW	14523E

SHEET NO.

C2.3



TEMPORARY MODIFICATIONS TO PERMANENT PONDS (TM)

Description

Permanent stormwater management ponds may be used for temporary sediment control during construction. Temporary modifications to the outlet of permanent ponds are usually required for suitable sediment trapping efficiency.

Specifications for Temporary Modifications to Stormwater Ponds Used for Sediment Control During Construction

Note: See the Specifications for Sediment Basins.

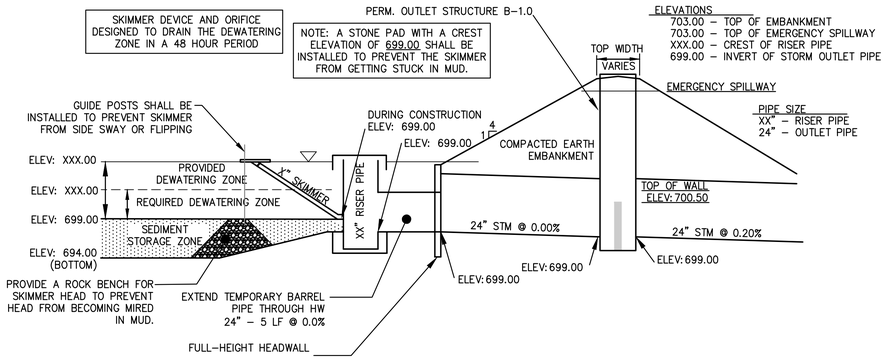
Specifications for Sediment Basins

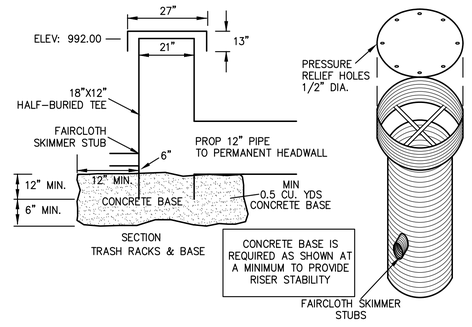
1. The stormwater pond shall be constructed, and all temporary sediment control modifications shall be operational before upslope land disturbance begins.
2. The pond shall be stabilized immediately following its construction. In no case shall the embankment or emergency spillway remain bare for more than seven (7) days.
3. During site construction, sediment shall be removed when the sediment has filled one-half (½) the pond's original depth or as indicated on the plans.
4. Final removal – Temporary structures or modifications used for sediment control during construction shall be removed only after the upstream drainage area is stabilized or as indicated in the plans. Dewatering and removal shall NOT cause sediment to be discharged.
5. Sediment shall be removed and basin graded as needed once temporary modifications are removed in order to achieve the design depth and dimensions of the permanent pond.

SWP3 LEGEND

(OP) OUTLET PROTECTION

SEDIMENT BASIN "A" DETAIL





NOTES:
1. Sediment basins shall have excess sediment removed from settling pond when it occupies 50% of the designed sediment storage zone. (Elev. ±1058.00)

40 20 10 0
NORTH
SCALE
1 INCH = 20 FEET
24 x 36
SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

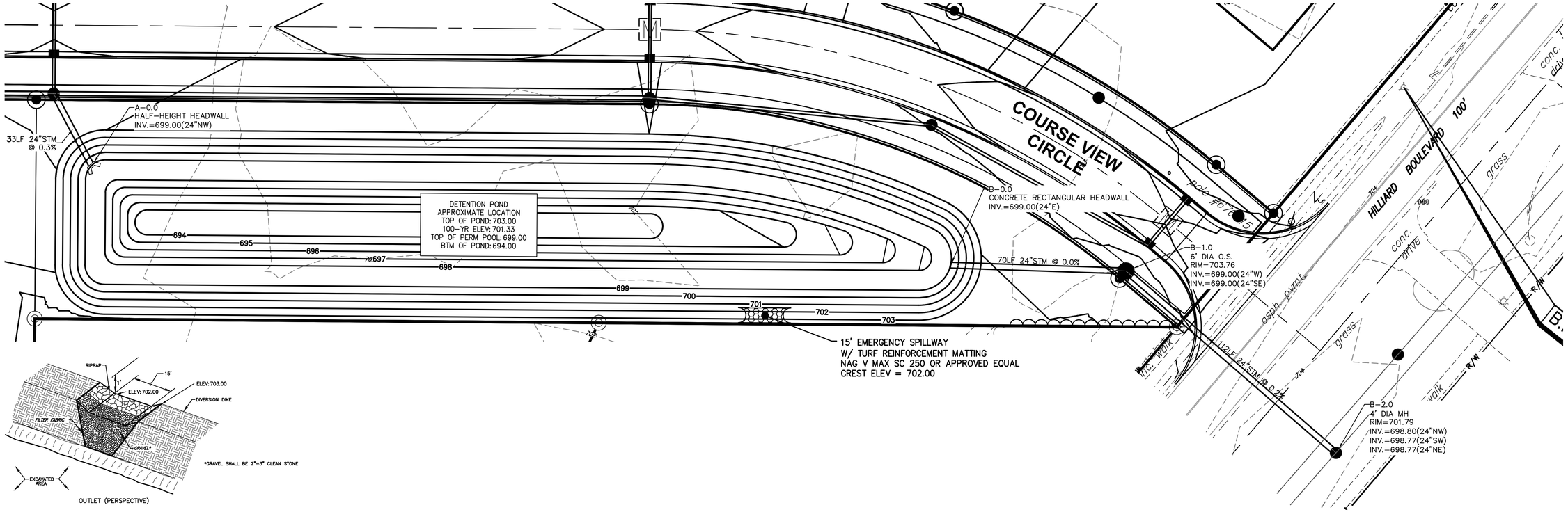
SWP3 TEMPORARY SEDIMENT BASIN

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
(440) 845-1144 | (440) 845-1145
www.neffassoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

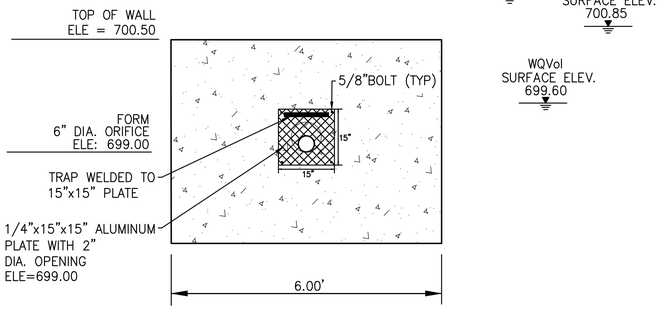
DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-SWP3	KMK	GHW	14523E

SHEET NO.
C2.4



OUTLET (PERSPECTIVE)

EMERGENCY SPILLWAY DETAIL (ES)
N.T.S.



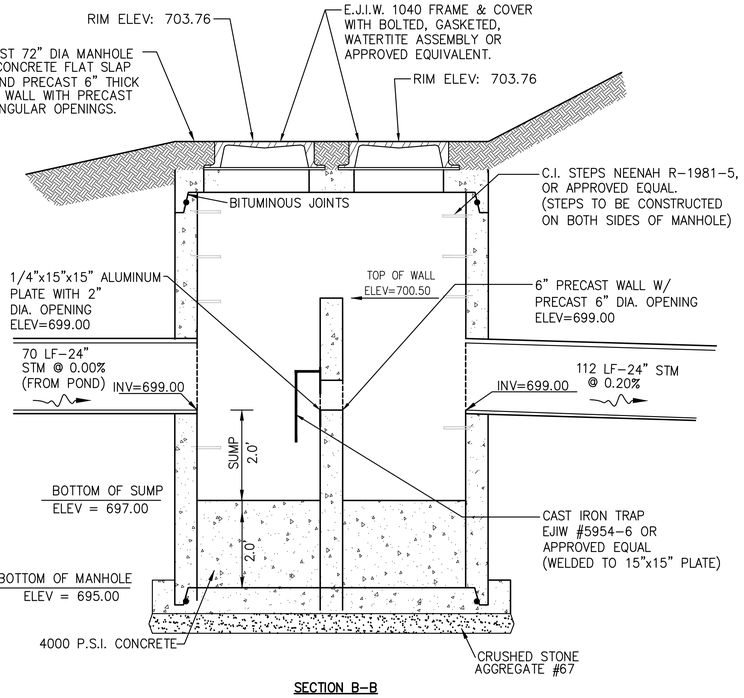
SECTION A-A

WALL DETAIL

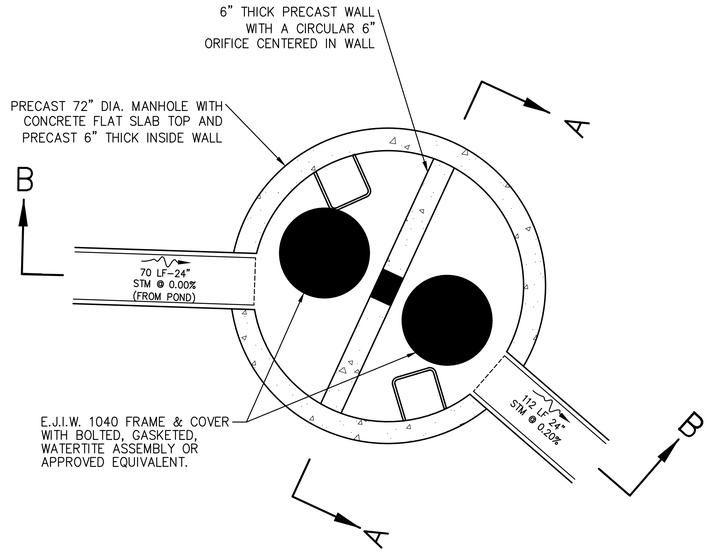
100-YR.
SURFACE ELEV.
701.33

25-YR.
SURFACE ELEV.
700.85

WQVol
SURFACE ELEV.
699.60



SECTION B-B



PLAN VIEW

NOTES:

1. ALL WALL JOINTS, WALL TO STRUCTURE JOINTS, ORIFICE PLATES, AND PIPE CONNECTIONS SHALL BE WATERTIGHT.

OUTLET STRUCTURE - B-1.0

NOT TO SCALE

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SWP3 POND DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

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REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-SWP3	KMK	GHW	14523E

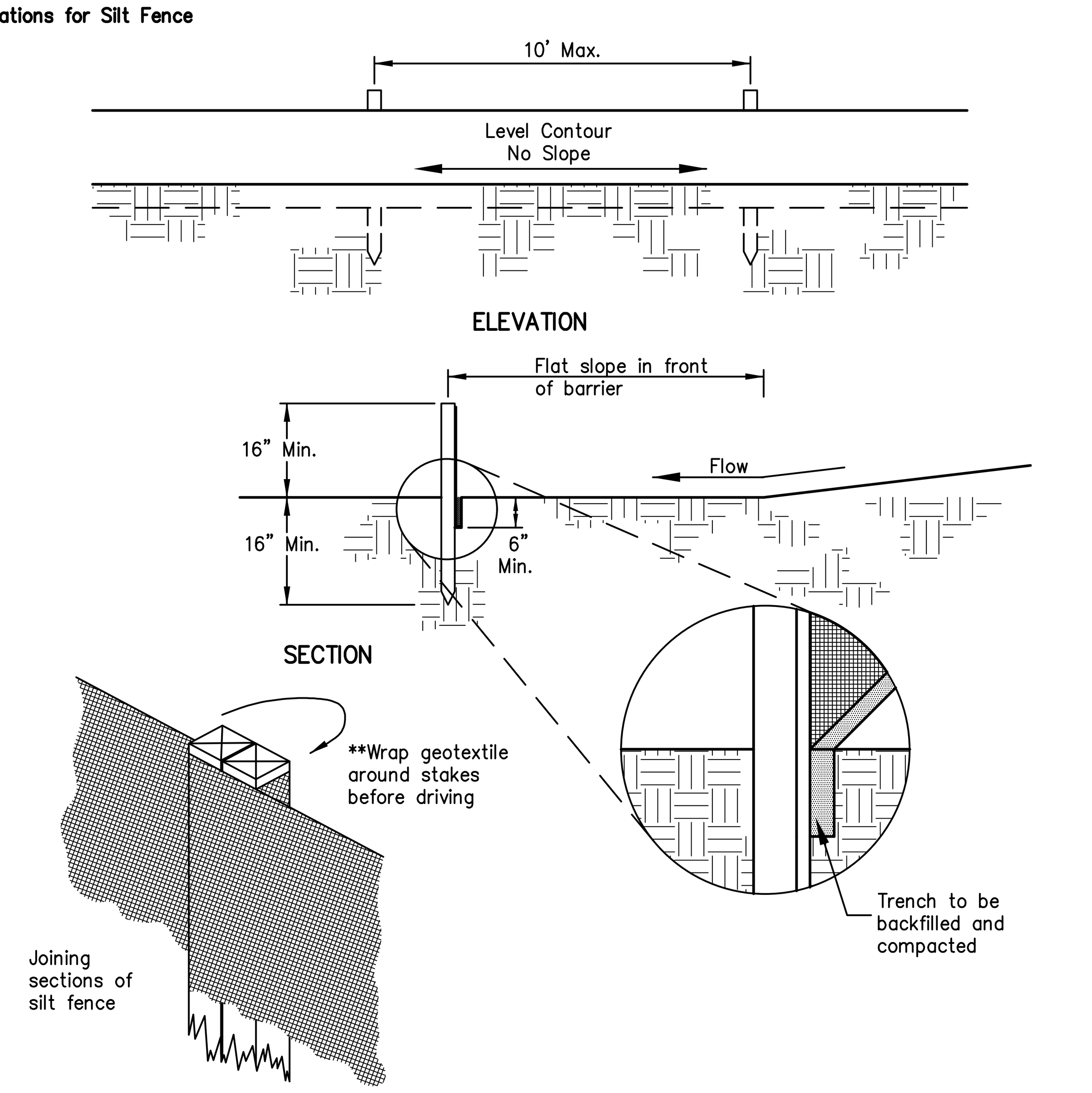
SHEET NO.
C2.5

Silt Fence (SF)

Description

Silt fence is a sediment–trapping practice utilizing a geotextile fence, topography and sometimes vegetation to cause sediment deposition. Silt fence reduces runoff's ability to transport sediment by ponding runoff and dissipating small rills or concentrated flow into uniform sheet flow. Silt fence is used to prevent sediment–laden sheet runoff from entering into downstream creeks and sewer systems.

Specifications for Silt Fence



1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry concentrated flows to the silt fence are dissipated along its length.
3. Ends of the silt fence should be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
4. Silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
6. The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
7. The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequate uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6–inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
9. Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6–in. overlap prior to driving into ground, (see detail).
10. Maintenance – Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be preformed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.
    - Sediment deposits shall be routinely removed when the deposit reaches approximately one–half the height of the silt fence.
    - Silt fences shall be inspected after each rainfall and at least daily during prolonged rainfall. The location of the existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

Criteria for Silt Fence Materials

1. Fence post – The length shall be a minimum of 32 inches. Wood post will be 2–by–2–in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits, and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
2. Silt fence fabric – See chart below.

Fabric Properties	Values	Test Method
Minimum Tensile Strength	120 lbs (535 N)	ASTM D4632
Maximum Elongation at 60 lbs	50%	ASTM D4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D4533
Apparent Opening Size	≤ 0.84 mm	ASTM D4751
Minimum Permittivity	1X10–2 sec.–1	ASTM D4491
UV Exposure Strength Retention	70%	ASTM D4355

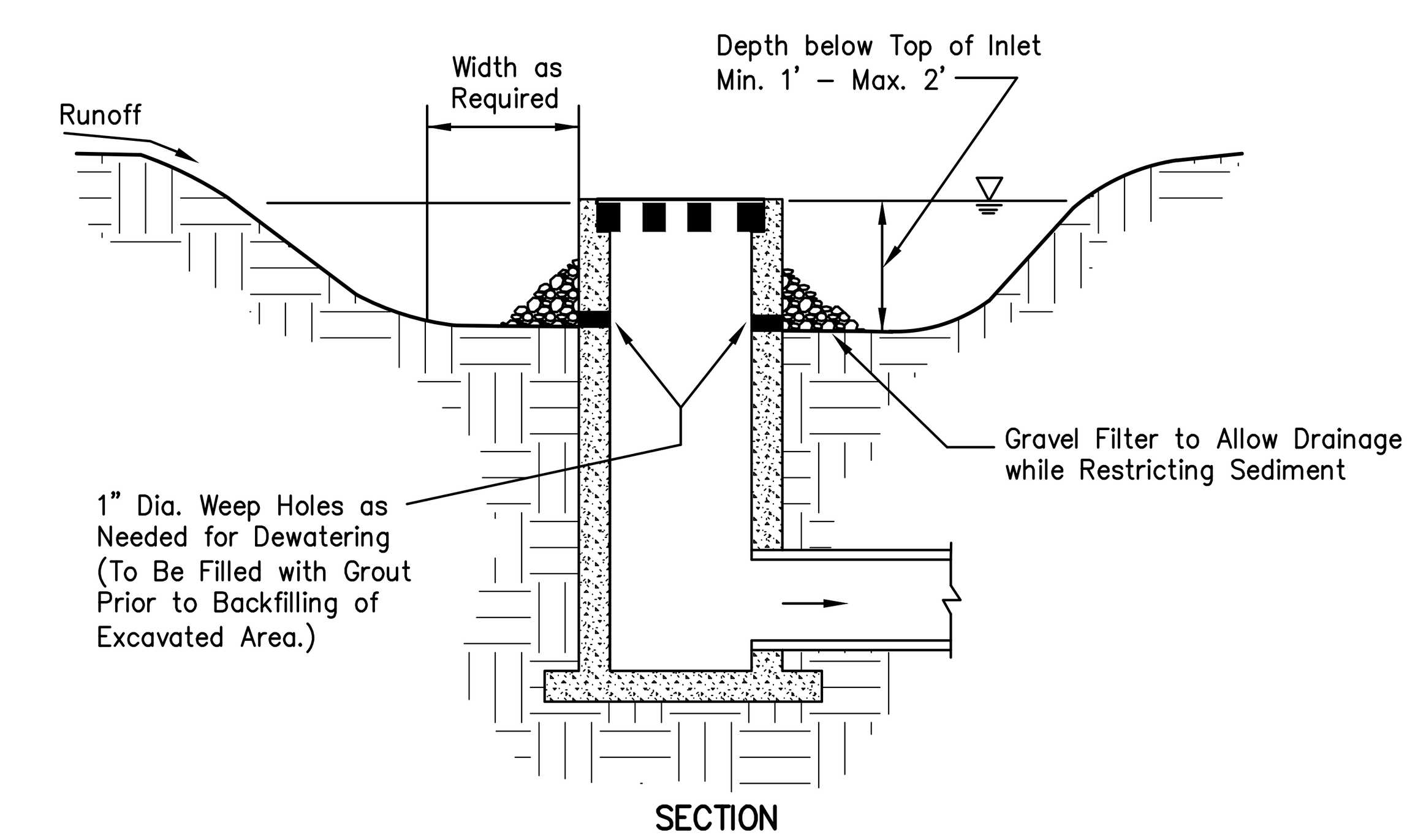
Storm Drain Inlet Protection (IP)

Description

Storm drain inlet protection devices remove sediment from storm water before it enters storm sewers and downstream areas. Inlet protection devices are sediment barriers that may be constructed of washed gravel or crushed stone, geotextile fabrics and other materials that are supported around or across storm drain inlets.

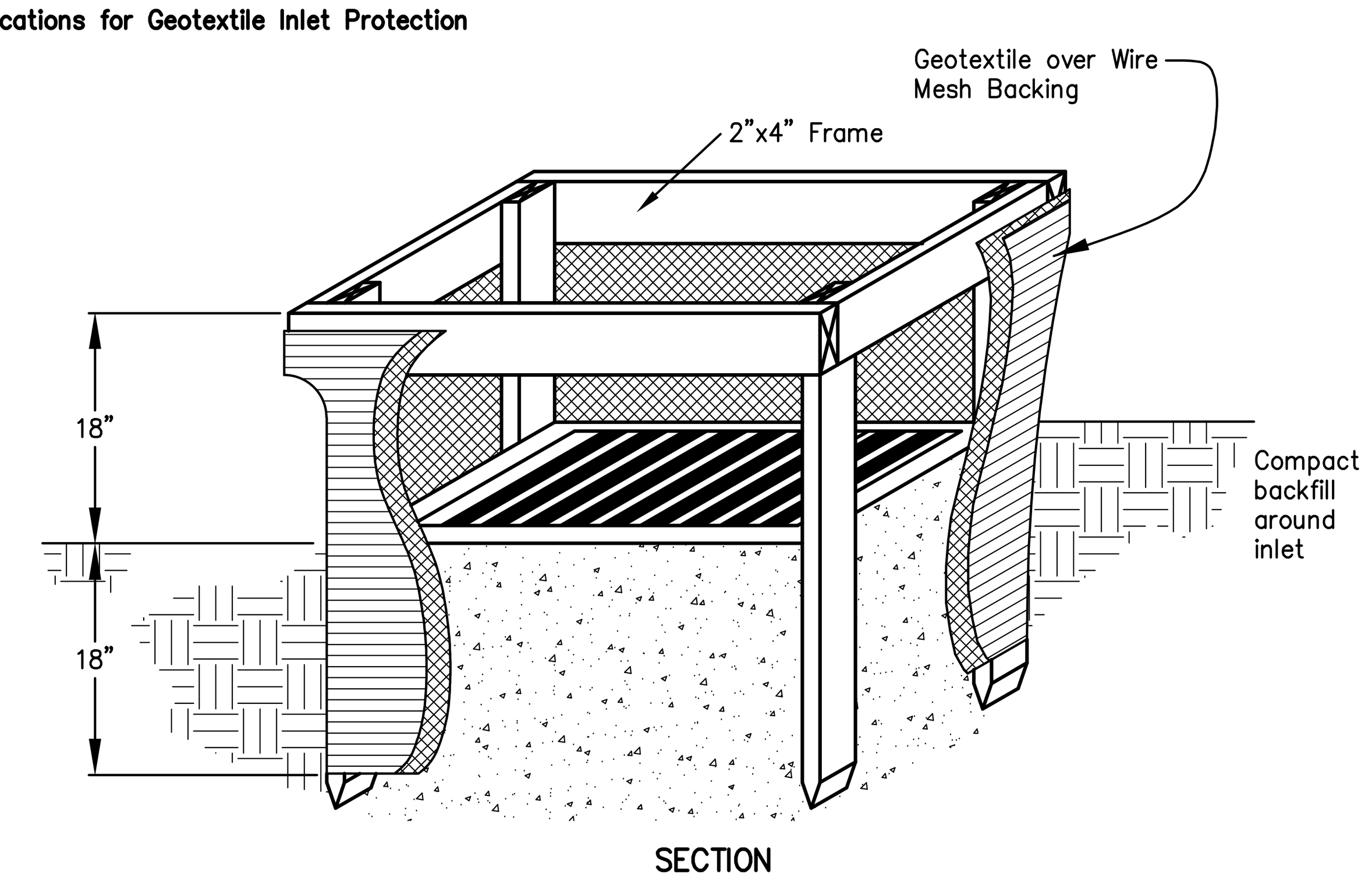
Inlet protection is installed to capture some sediment and reduce the maintenance of storm sewers and other underground piping systems prior to the site being stabilized. Due to their poorer effectiveness, inlet protection is considered a secondary sediment control to be used in conjunction with other more effective controls.

Specifications for Excavated Drop Inlet Sediment Protection

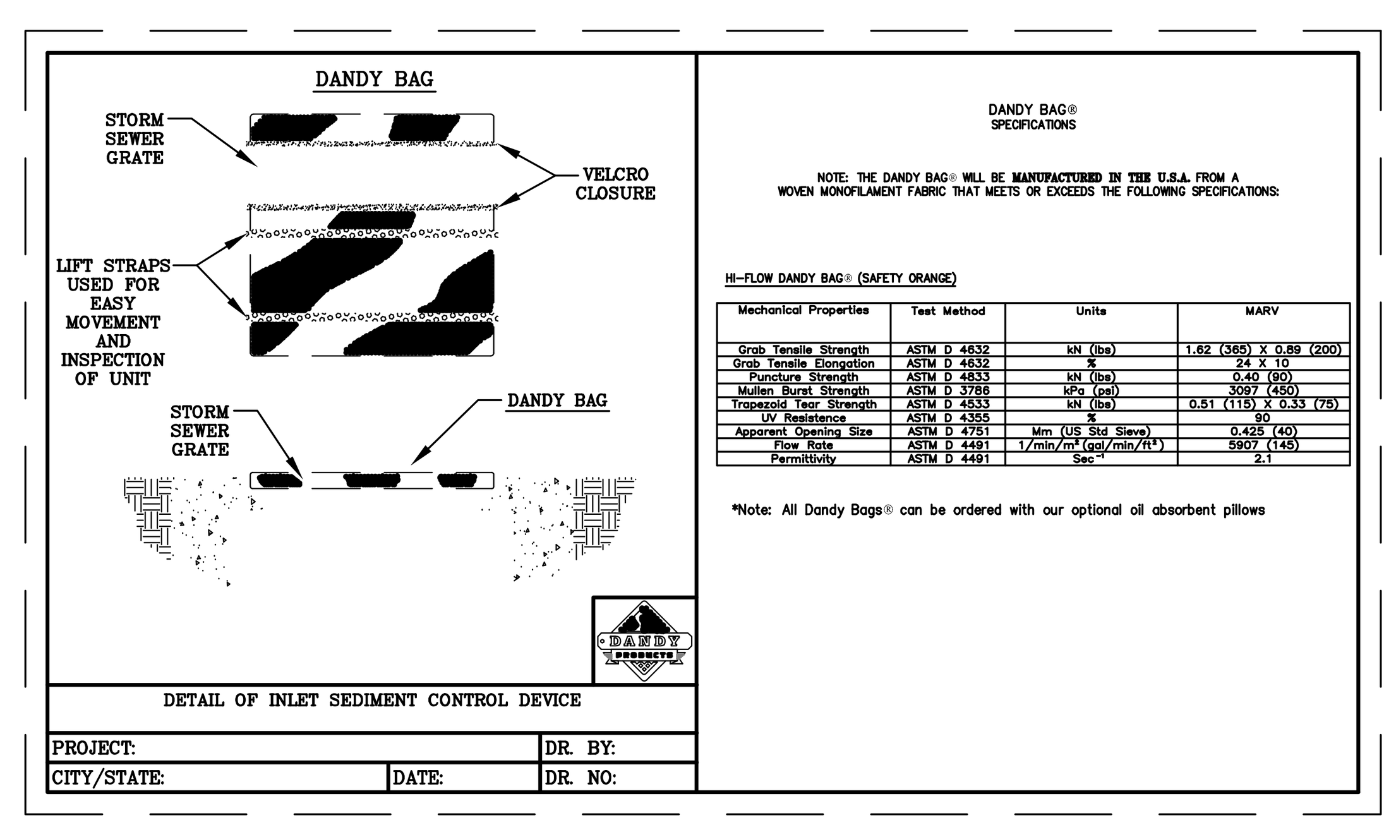


1. The excavated trap should sized to proved a minimum storage capacity calculated at the rate of 135 cubic yards for one (1) acre of drainage area. A trap should be no more than one (1) foot, nor more than two (2) feet deep measured from the top of the inlet structure. Side slopes should not be steeper than 2:1.
2. The slopes of the trap may vary to fit the drainage are and terrain.
3. Where the area receives concentrated flows, such as in the highway median, provide the trap with a shape having a 2:1 ratio of length to width, with the length oriented in the direction of flow.
4. Sediment should be removed and the trap restored to the original depth when the sediment has accumulated to 40% the design depth of the trap. Removed sediment should be spread in a suitable area and stabilized so it will not erode.
5. During final grading, the inlet should be protected with geotextile–stone inlet protection. Once final grading is achieved, sod or a suitable temporary erosion control material shall be implemented to protect the area until permanent vegetation is established.

Specifications for Geotextile Inlet Protection



1. Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
2. The earth around the inlet shall be excavated completely to a depth at least 18 inches.
3. The wooden frame shall be constructed of 2–inch by 4–inch construction–grade lumber. The 2 inch by 4–inch posts shall be driven one (1) f.t into the ground at four corners of the inlet and the top portion of 2–inch by 4–inch frame assembled using the overlap joint shown. The top of the frame shall be at least 6 inches below adjacent roads if ponded water will pose a safety hazard to traffic.
4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the frame.
5. Geotextile material shall have an equivalent opening size of 20–40 sieve and be resistant to sunlight. It shall be stretched tightly around the frame and fastened securely. It shall extend from the top of the frame to 18 inches below the inlet notch elevation. The geotextile shall overlap across one side of the inlet so the ends of the cloth are not fastened to the same post.
6. Backfill shall be placed around the inlet in compacted 6 inch layers until the earth is even with notch elevation on ends and top elevation on sides.
7. A compacted earth dike or a check dam shall be constructed in the ditch line below the inlet if the inlet is not in a depression. The top of the dike shall be at least 6 inches higher than the top of the frame.

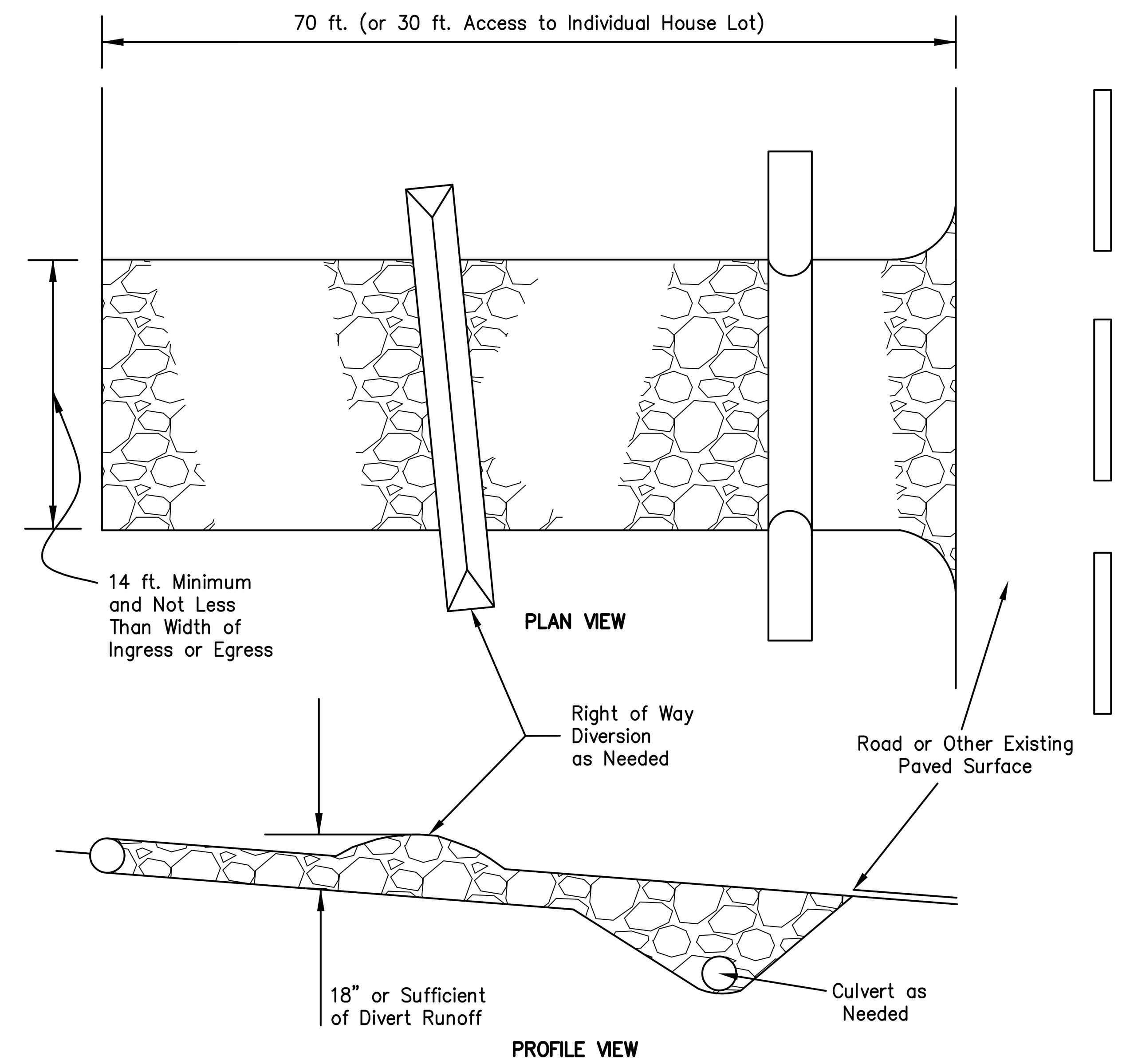


Construction Entrance (CE)

Description

A construction entrance is a stabilized pad of stone underlain with a geotextile and is used to reduce the amount of mud tracked off–site with construction traffic. Located at points of ingress/egress, the practice is used to reduce the amount of mud tracked off–site with construction traffic.

Specifications for Construction Entrance



1. Stone Size – ODOT # 2 (1.5–2.5 inch) stone shall be used, or recycled concrete equivalent.
2. Length – The Construction entrance shall be as long as required to stabilize high traffic areas but not less than 70 ft. (exception: apply 30 ft. minimum to single residence lots).
3. Thickness – The stone layer shall be at least 6 inches thick for light duty entrances or at least 10 inches for heavy duty use.
4. Width – The entrance shall be at least 14 feet wide, but not less than the full width at points where ingress or egress occurs.
5. Geotextile – A geotextile shall be laid over the entire area prior to placing stone. It shall be composed of strong rot–proof polymeric fibers and meet the following specifications:

Geotextile Specifications for Construction Entrances	
Minimum Tensile Strength	200 lbs.
Minimum Puncture Strength	80 psi.
Minimum Tear Strength	50 lbs.
Minimum Burst Strength	320 psi.
Minimum Elongation	20%
Equivalent Opening Size	EOS<0.6mm.
Permittivity	1x10–3 cm/sec.

6. Timing – The construction entrance shall be installed as soon as is practicable before major grading activities.
7. Culvert – A pipe or culvert shall be constructed under the entrance if needed to prevent surface water from flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.
8. Water Bar – A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.
9. Maintenance – Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping.
10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off–site tracking. Vehicles that enter and leave the construction–site shall be restricted from muddy areas.
11. Removal – The entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway or entrance.

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SWP3 DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
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REV NO	DATE	DESCRIPTION
	04–27–26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-SWP3	KMK	GHW	14523E

SHEET NO.
C2.6

Permanent Seeding (PS)

Description

Perennial vegetation is established on areas that will not be re–disturbed for periods longer than 12 months. Permanent seeding includes site preparation, seedbed preparation, planting seed, mulching, irrigation and maintenance.

Permanent vegetation is used to stabilize soil, reduce erosion, prevent sediment pollution, reduce runoff by promoting infiltration, and provide storm water quality benefits offered by dense grass cover.

Specifications for Permanent Seeding

Site Preparation

1. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip–prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
3. Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

1. Lime – Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000–sq. ft. or 2 tons per acre.
2. Fertilizer – Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000–sq. ft. or 1000 pounds per acre of a 10–10–10 or 12–12–12 analyses.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring–tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

Dormant Seedings

1. Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":
   - From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
   - From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
   - Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro–seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
   - Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

Mulching

1. Mulch material shall be applied immediately after seeding. Dormant seeding shall be mulched. 100% of the ground surface shall be covered with an approved material.
2. Materials:
   - Straw – If straw is used it shall be unrotted small–grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000–sq. ft. The mulch shall be spread uniformly by hand or mechanically applied so the soil surface is covered. For uniform distribution of hand–spread mulch, divide area into approximately 1,000–sq.–ft. sections and spread two 45–lb. bales of straw in each section.
   - Hydroseeders – If wood cellulose fiber is used, it shall be applied at 2000 lb./ac. or 46 lb./1,000 sq.–ft.
   - Other – Other acceptable mulches include rolled erosion control mattings or blankets applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.
3. Straw and Mulch Anchoring Methods:
   Straw mulch shall be anchored immediately to minimize loss by wind or water.
   - Mechanical – A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
   - Mulch Netting – Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
   - Asphalt Emulsion – Asphalt shall be applied as recommended by the manufacture or at the rate of 160 gallons per acre.
   - Synthetic Binders – Synthetic binders such as Acrylic DLR (Agri–Tac), DCA–70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
   - Wood Cellulose Fiber – Wood cellulose fiber shall be applied at a net dry weight of 750 pounds per acre. The wood cellulose fiber shall be mixed with water with the mixture containing a maximum of 50 pounds cellulose per 100 gallons of water.

Irrigation

Permanent seeding shall include irrigation to establish vegetation during dry weather or on adverse site conditions, which require adequate moisture for seed germination and plant growth.

Irrigation rates shall be monitored to prevent erosion and damage to seeded areas from excessive runoff.

Seed Mix	Seeding Rate		Notes:
	Lbs./Acre	Lbs./1,000 Sq. Feet	
General Use			
Creeping Red Fescue Domestic Ryegrass Kentucky Bluegrass	20–40 10–20 20–40	1/2–1 1/4–1/2 1/2–1	For close mowing & for waterways with <2.0 ft/sec velocity
Tall Fescue	40–50	1–1 1/4	
Turf–type (dwarf) Fescue	90	2 1/4	
Steep Banks or Cut Slopes			
Tall Fescue	40–50	1–1 1/4	
Crown Vetch Tall Fescue	10–20 20–30	1/4–1/2 1/2–3/4	Do not seed later than August
Flat Pea Tall Fescue	20–25 20–30	1/2–3/4 1/2–3/4	Do not seed later than August
Road Ditches and Swales			
Tall Fescue	40–50	1–1 1/4	
Turf–type (Dwarf) Fescue Kentucky Bluegrass	90 5	2 1/4 0.1	
Lawns			
Kentucky Bluegrass Perennial Ryegrass	100–200	2 2	
Kentucky Bluegrass Creeping Red Fescue	100–200	2 1–1/2	For shaded areas

Note: Other approved species may be substituted.

Temporary Seeding (TS)

Description

Temporary seedings establish temporary cover on disturbed areas by planting appropriate rapidly growing annual grasses or small grains. Temporary seeding provides erosion control on areas in between construction operations. Grasses, which are quick growing, are seeded and usually mulched to provide prompt, temporary soil stabilization. It effectively minimizes the area of a construction site prone to erosion and should be used everywhere the sequence of construction operations allows vegetation to be established.

Specifications for Temporary Seeding

Temporary Seeding Species Selection

Seeding Dates	Species	Lb./1000 ft2	Lb./Acre
March 1 to August 15	Oats Tall Fescue Annual Ryegrass	3 1 1	128 (4 Bushel) 40 40
	Perennial Ryegrass Tall Fescue Annual Ryegrass	1 1 1	40 40 40
	Annual Ryegrass Perennial Ryegrass Creeping Red Fescue Kentucky Bluegrass	1.25 3.25 0.4 0.4	55 142 17 17
	Oats Tall Fescue Annual Ryegrass	3 1 1	128 (3 Bushel) 40 40
August 16th to November	Rye Tall Fescue Annual Ryegrass	3 1 1	112 (2 Bushel) 40 40
	Wheat Tall Fescue Annual Ryegrass	3 1 1	120 (2 Bushel) 40 40
	Perennial Rye Tall Fescue Annual Ryegrass	1 1 1	40 40 40
	Annual Ryegrass Perennial Ryegrass Creeping Red Fescue Kentucky Bluegrass	1.25 3.25 0.4 0.4	40 40 40
November 1 to Feb. 29	Use mulch only or dormant seeding		

Note: Other approved species may be substituted.

1. Structural erosion and sediment control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 14 days or greater. These idle areas shall be seeded within 7 days after grading.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. Temporary seeding should not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments – Temporary vegetation seeding rates shall establish adequate stands of vegetation, which may require the use of soil amendments. Base rates for lime and fertilizer shall be used.
5. Seeding Method – Seed shall be applied uniformly with a cyclone spreader, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on–site and the seeding shall be done immediately and without interruption.

Mulching Temporary Seeding

1. Applications of temporary sedding shall include mulch, which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates on favorable, very flat soil conditions may not need mulch to achieve adequate stabilization.
2. Materials:
   - Straw – If straw is used, it shall be unrotted small–grain straw applied at a rate of 2 tons/acre or 90 lbs./1,000 sq.–ft. (2–3 bales)
   - Hydroseeders – If wood cellulose fiber is used, it shall be used at 2,000 lbs./ac. or 46 lb./1,000 sq.–ft.
   - Other – Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 ton/ac.
3. Straw mulch shall be anchored immediately to minimize loss by wind or water. Anchoring methods:
   - Mechanical – A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but left to a length of approximately 6 inches.
   - Mulch Netting – Netthing shall be used according to manufacturer's recommendations. Netting may be necessary to hold mulchin place in areas of concentrated runoff and on critical slopes.
   - Synthetic Binders – Synthetic binders such as Acrylic DLR (Agri–Tac), DCA–70, Petroset, Terra Track or equivalent may be used at rates recommended by the manufacturer.
   - Wood–Cellulose Fiber – Wood –cellulose fiber binder shall be applied at a net dry wt. of 750 lb./ac. The wood–cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb./100 gal.

Dust Control (DC)

Description

Dust control involves preventing or reducing dust from exposed soils and other surfaces during land disturbing, demolition and construction activities to reduce the presence of airborne substances which may present health hazards, traffic safety problems or harm animal or plant life.

Specifications for Dust Control

1. Vegetative cover and/mulch – Apply temporary or permanent seeding and mulch to areas that will remain idle for over 14 days. Saving existing trees and large shrubs will also reduce soil and air movement across disturbed areas. See Temporary Seeding; Permanent Seeding; Mulching Practices; and Tree and Natural Area Protection practices.
2. Watering – Spray site with water until the surface is wet before and during grading and repeat as needed, especially on haul roads and other heavy traffic routes. Watering shall be done at a rate that prevents dust but does not cause soil erosion. Wetting agents shall be utilized according to manufacture's instructions.
3. Spray–On Adhesives – Apply adhesives according to the following table or manufacture's instructions.

Adhesive	Water Dilution (Adhesive: Water)	Nozzle Type	Application Rate Gal./Ac.
Latex Emulsion	12.5:1	Fine	235
Resin in Water Acrylic Emulsion (No–Traffic)	4:1	Fine	300
Acrylic Emulsion (No–Traffic)	7:1	Coarse	450
Acrylic Emulsion (Traffic)	3.5:1	Coarse	350

4. Stone – Graded roadways and other suitable areas will be stabilized using crushed stone or coarse gravel as soon as practicable after reaching an interim or final grade. Crushed stone or coarse gravel can be used as a permanent cover to provide control of soil emissions.
5. Barriers – Existing windbreak vegetation shall be marked and preserved. Snow fencing or other suitable barrier may be placed perpendicular to prevailing air currents at intervals of about 15 times the barrier height to control air currents and blowing soil.
6. Calcium Chloride – This chemical may be applied by mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage. Application rates should be strictly in accordance with supplier's specified rates.
7. Operation and Maintenance – When Temporary Dust Control measures are used; repetitive treatment should be applied as needed to accomplish control.
8. Street Cleaning – Paved areas that have accumulated sediment from construction should be cleaned daily, or as needed, utilizing a street sweeper or bucket–type endloader or scraper.

Additional Construction Site Pollution Controls (PC)

Description

Although sediment is the primary pollutant of concern resulting from construction activity, other pollutants need to be considered as well. These include petrochemicals: fuel, oil, and asphalt; and construction chemicals and materials: paints, solvents, fertilizer, soil additives, concrete wash water, etc. Also included are solid wastes and construction debris. Keeping these substances from polluting runoff can be accomplished to a large extent through good housekeeping and following the manufacturer's recommendations for their use and disposal.

Specifications for Additional Construction Site Pollution Controls

1. *Construction personnel, including subcontractors who may use or handle hazardous or toxic materials, shall be made aware of the following general guidelines regarding disposal and handling of hazardous and construction wastes:*
   - *Prevent spills*
   - *Use products up*
   - *Follow label directions for disposal*
   - *Remove lids from empty bottles and cans when disposing in trash*
   - *Recycle wastes whenever possible*
   - *Don't pour into waterways, storm drains or onto the ground*
   - *Don't pour down the sink, floor drain or septic tanks*
   - *Don't bury chemicals or containers*
   - *Don't burn chemicals or containers*
   - *Don't mix chemicals together*
2. *Containers shall be provided for the proper collection of all waste material including construction debris, trash, petroleum products and any hazardous materials used on–site. Containers shall be covered and not leaking. All waste material shall be disposed of at facilities approved for that material. Construction Demolition and Debris (CD&D) waste must be disposed of at an Ohio EPA approved CD&D landfill.*
3. *No construction related waste materials are to be buried on–site. By exception, clean fill (bricks, hardened concrete, soil) may be utilized in a way which does not encroach upon natural wetlands, streams or floodplains or result in the contamination of waters of the state.*
4. *Handling Construction Chemicals. Mixing, pumping, transferring or other handling of construction chemicals such as fertilizer, lime, asphalt, concrete drying compounds, and all other potentially hazardous materials shall be performed in an area away from any watercourse, ditch or storm drain.*
5. *Equipment Fueling and Maintenance, oil changing, etc., shall be performed away from watercourses, ditches or storm drains, in an area designated for that purpose. The designated area shall be equipped for recycling oil and catching spills. Secondary containment shall be provided for all fuel oil storage tanks. These areas must be inspected every seven days and within 24 hrs. of a 0.5 inch or greater rain event to ensure there are no exposed materials which would contaminate storm water. Site operators must be aware that Spill Prevention Control and Countermeasures (SPCC) requirements may apply. An SPCC plan is required for sites with one single above ground tank of 660 gallons or more, accumulative above ground storage of 1330 gallons or more, or 42,000 gallons of underground storage. Contaminated soils must be disposed of in accordance with Item 8.*
6. *Concrete Wash Water shall not be allowed to flow to streams, ditches, storm drains, or any other water conveyance. A sump or pit with no potential for discharge shall be constructed if needed to contain concrete wash water. Field tile or other subsurface drainage structures within 10 ft. of the sump shall be cut and plugged. For small projects, truck chutes may be rinsed away from any water conveyances.*
7. *Spill Reporting Requirements: Spills on pavement shall be absorbed with sawdust or kitty litter and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil–based paints, and cement curing compounds require special handling. Spills shall be reported to Ohio EPA (1–800–282–9378). Spills of 25 gallons or more of petroleum products shall be reported to Ohio EPA, the local fire department, and the Local Emergency Planning Committee within 30 min. of the discovery of the release. All spills which contact waters of the state must be reported to Ohio EPA.*
8. *Contaminated Soils. If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc. are spilled, leaked, or released onto the soil, the soil should be dug up and disposed of at licensed sanitary landfill or other approved petroleum contaminated soil remediation facility. (not a construction/demolition debris landfill). Note that storm water run off associated with contaminated soils are not be authorized under Ohio EPA's General Storm Water Permit associated with Construction Activities.*
9. *Open Burning. No materials containing rubber, grease, asphalt, or petroleum products, such as tires, autoparts, plastics or plastic coated wire may be burned (OAC 3745–19). Open burning is not allowed in restricted areas, which are defined as: 1) within corporation limits; 2) within 1000 feet outside a municipal corporation having a population of to 10,000; and 3) a one mile zone outside of a corporation of 10, 000 or more. Outside of restricted areas, no open burning is allowed within a feet of an inhabited building on another property. Open burning is permissible in a restricted area for: heating tar, welding, smudge pots and similar occupational needs, and heating for warmth or outdoor barbeques. Outside of restricted areas, open burning is permissible for landscape or land–clearing wastes (plant material, with prior written permission from Ohio EPA), and agricultural wastes, excluding buildings.*
10. *Dust Control or dust suppressants shall be used to prevent nuisance conditions, in accordance with the manufacturer's specifications and in a manner, which prevent a discharge to waters of the state. Sufficient distance must be provided between applications and nearby bridges, catch basins, and other waterways. Application (excluding water) may not occur when rain is imminent as noted in the short term forecast. Used oil may not be applied for dust control.*
11. *Other Air Permitting Requirements: Certain activities associated with construction will require air permits including but not limited to: mobile concrete batch plants, mobile asphalt plants, concrete crushers, large generators, etc. These activities will require specific Ohio EPA Air Permits for installation and operation. Operators must seek authorization from the corresponding district of Ohio EPA. For demolition of all commercial sites, a Notification for Restoration and Demolition must be submitted to Ohio EPA to determine if asbestos corrective actions are required.*
12. *Process Waste Water/Leachate Management. Ohio EPA's Construction General Permit only allows the discharge of storm water and does not include other waste streams/discharges such as vehicle and/or equipment washing, on–site septic leachate concrete wash outs, which are considered process wastewaters. All process wastewaters must be collected and properly disposed at an approved disposal facility. In the event, leachate or septage is discharged; it must be isolated for collection and proper disposal and corrective actions taken to eliminate the source of waste water.*
13. *A Permit To Install (PTI) is required prior to the construction of all centralized sanitary systems, including sewer extensions, and sewerage systems (except those serving one, two, and three family dwellings) and potable water lines. Plans must be submitted and approved by Ohio EPA. Issuance of an Ohio EPA Construction General Storm Water Permit does not authorize the installation of any sewerage system where Ohio EPA has not approved a PTI.*

REV NO	DATE	DESCRIPTION
	04–27–26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-SWP3	KMK	GHW	14523E

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SWP3 DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

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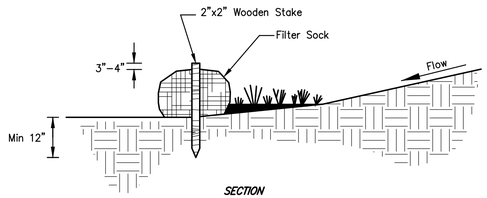
SHEET NO.
C2.7

Filter Sock (FS)

Description

Filter socks are sediment–trapping devices using compost inserted into a flexible, permeable tube with a pneumatic blower device or equivalent. Filter socks trap sediment by filtering water passing through the berm and allowing water to pond, creating a settling of solids.

Specifications for Filter Sock



SECTION

1. Materials – Filter sock must be composted sock and 12" wide minimum. Compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well–decomposed source of organic matter and consist of a particles ranging from 3/8" to 2".
2. Filter Socks shall be 3 or 5 mil continuous, tubular, HDPE 3/8" knitted mesh netting material, filled with compost passing the above specifications for compost products.

Instalation :

3. Filter socks will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional socks shall be provided at the top and as needed midslope.
4. Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.
5. Filter Socks are not to be used in concentrated flow situations or in runoff channels.

Maintenance:

6. Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
7. Remove sediments collected at the base of the filter socks when they reach 1/3 of the exposed height of the practice.
8. Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
9. Removal – Filter socks will be dispersed on site when no longer required in such as way as to facilitate and not obstruct seedings.

Note :

10. Filter sock should not be used on any locations with severe slopes or large denuded areas.

Temporary Diversion (TD)

Description

A temporary diversion is a dike and/or channel constructed to:

- Direct sediment–laden runoff to a settling pond.
- Route clean runoff away from disturbed areas.
- Divert runoff to reduce the effective length of the slope.
- Direct runoff away from steep cut or fill slopes.

Specifications for Temporary Diversion

1. Drainage area should not exceed 10 acres. Larger areas require a more extensive design.
2. The channel cross section may be parabolic or trapezoidal. Disk the base of the dike before placing fill. Build the dike 10% higher than designed for settlement. The dike shall be compacted by traversing with tracked earth–moving equipment.
3. The minimum cross section of the levee or dike will be as follows: (Minimum freeboard shall be 0.3 foot.) Where construction traffic will cross, the top width may be made wider and the side slopes flatter than specified above.

Dike Top Width (ft.)	Height (ft.)	Side Slopes	Shape
0	1.5	4:1	Trapezoidal
4	1.5	2:1	Parabolic

4. The grade may be variable depending upon the topography, but must have a positive drainage to the outlet and be stabilized to be non–erosive.

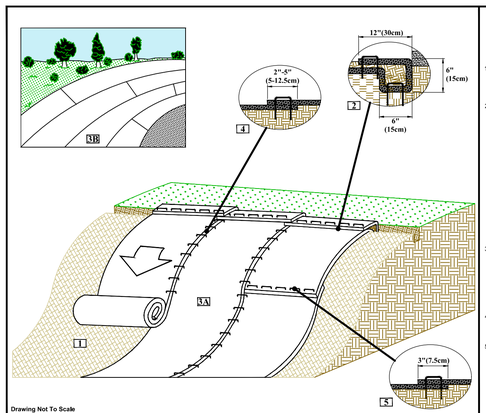
Temporary Diversion Stabilization Treatment			
Diversion Slope	< 2 ac.	2 – 5 ac.	5 – 10 ac.
0 – 3%	Seed and Straw	Seed and Straw	Seed and Straw
3 – 5%	Seed and Straw	Seed and Straw	Matting
5 – 8%	Seed and Straw	Matting	Matting
8 – 20%	Seed and Straw	Matting	Engineered
Note: Diversions with steeper slopes or greater drainage areas are beyond the scope of this standard and must be designed for stability. Seed, straw and matting used shall meet the Specifications for Temporary Seeding, Mulching and Matting.			

5. Outlet runoff onto a stabilized area, into a properly designed waterway, grade stabilization structure, or sediment trapping facility.
6. Diversions shall be seeded and mulched in accordance with the requirements in practice standards TEMPORARY SEEDING (or PERMANENT SEEDING) and MULCHING as soon as they are constructed or other suitable stabilization in order to preserve dike height and reduce maintenance.

EROSION CONTROL BLANKETING (BL)

ALL AREAS WHERE SLOPE IS STEEPER THAN 3:1, OR AS SHOWN ON THE PLAN, SHALL RECEIVE EROSION CONTROL BLANKETING SUCH AS NORTH AMERICAN GREEN S75BN OR APPROVED EQUAL. BLANKETING SHALL BE INSTALLED AND STAPLED AS SPECIFIED BY THE MANUFACTURE (SEE DETAIL BELOW).

SEEDING WITH EROSION CONTROL BLANKETING TO BE INSTALLED FOLLOWING COMPLETION OF EARTHWORK ACTIVITIES.



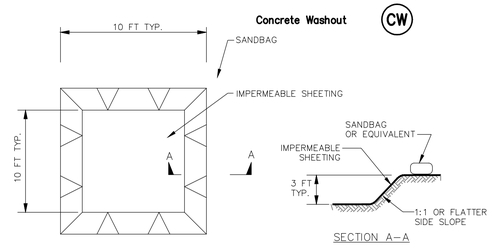
Drawing Not To Scale

SLOPE INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12" (30cm) of RECPs extended beyond the up-slope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12" (30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12"(30cm) apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. The edges of parallel RECPs must be stapled with approximately 2" - 5" (5-12.5cm) overlap depending on the RECPs type.
5. Consecutive RECPs spliced down the slope must be end over end (Shingle style) with an approximate 3"(7.5cm) overlap. Staple through overlapped area, approximately 12"(30cm) apart across entire RECPs width.

*NOTE:
In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECP's.

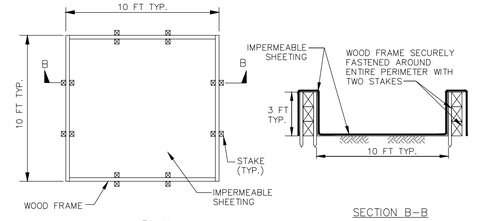
Concrete Washout (CW)



SECTION A–A

PLAN

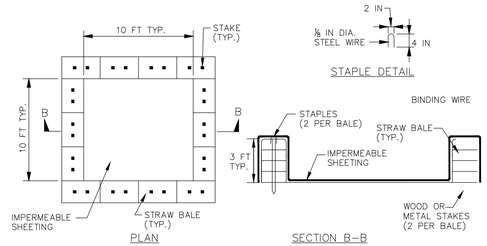
EXCAVATED WASHOUT STRUCTURE



PLAN

SECTION B–B

WASHOUT STRUCTURE WITH WOOD PLANKS



PLAN

SECTION B–B

NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED), EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET–VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SWP3 DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

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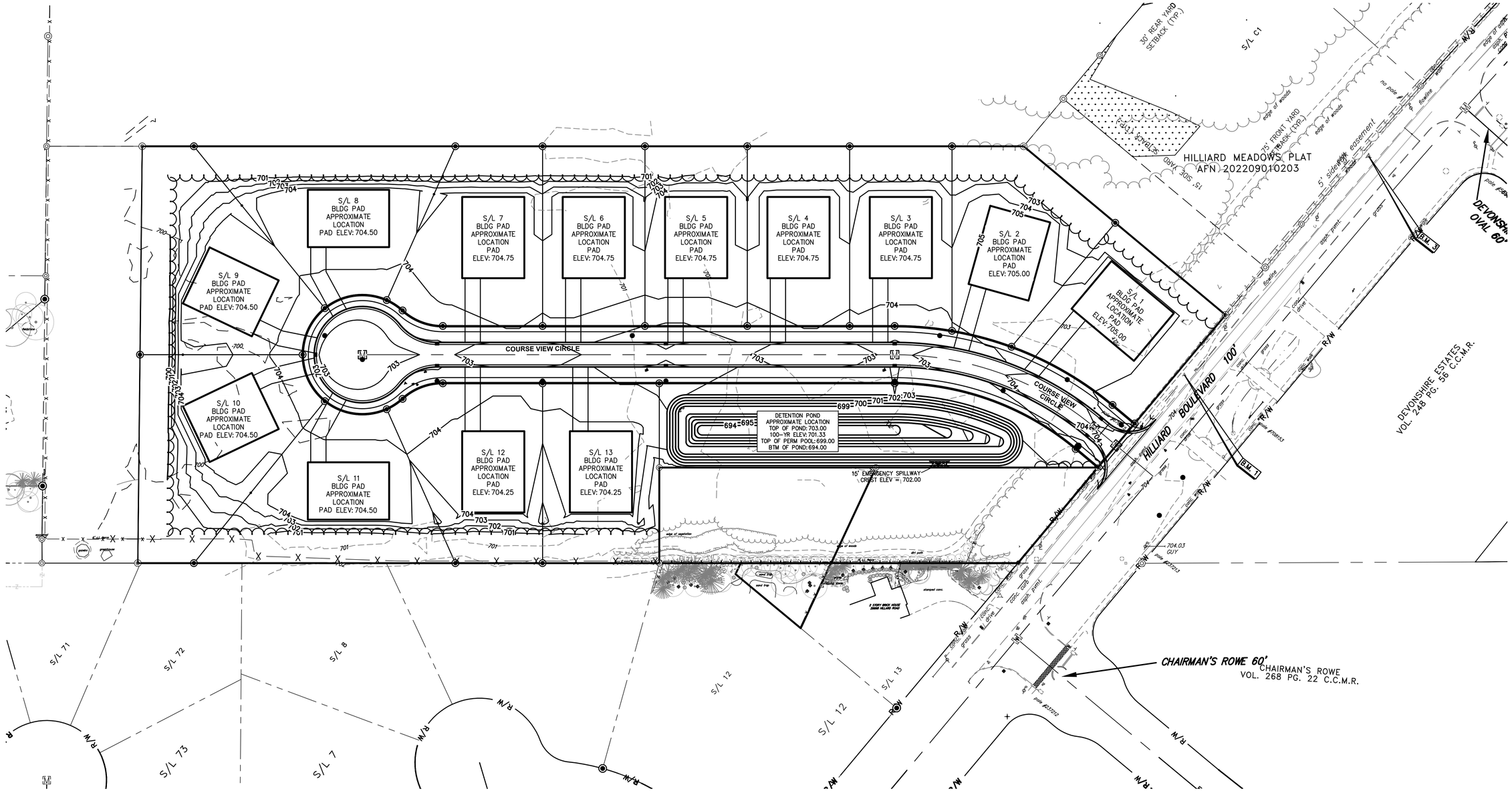
REV NO	DATE	DESCRIPTION
	04–27–26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

SHEET NO.

C2.8



THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

OVERALL SITE GRADING PLAN

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

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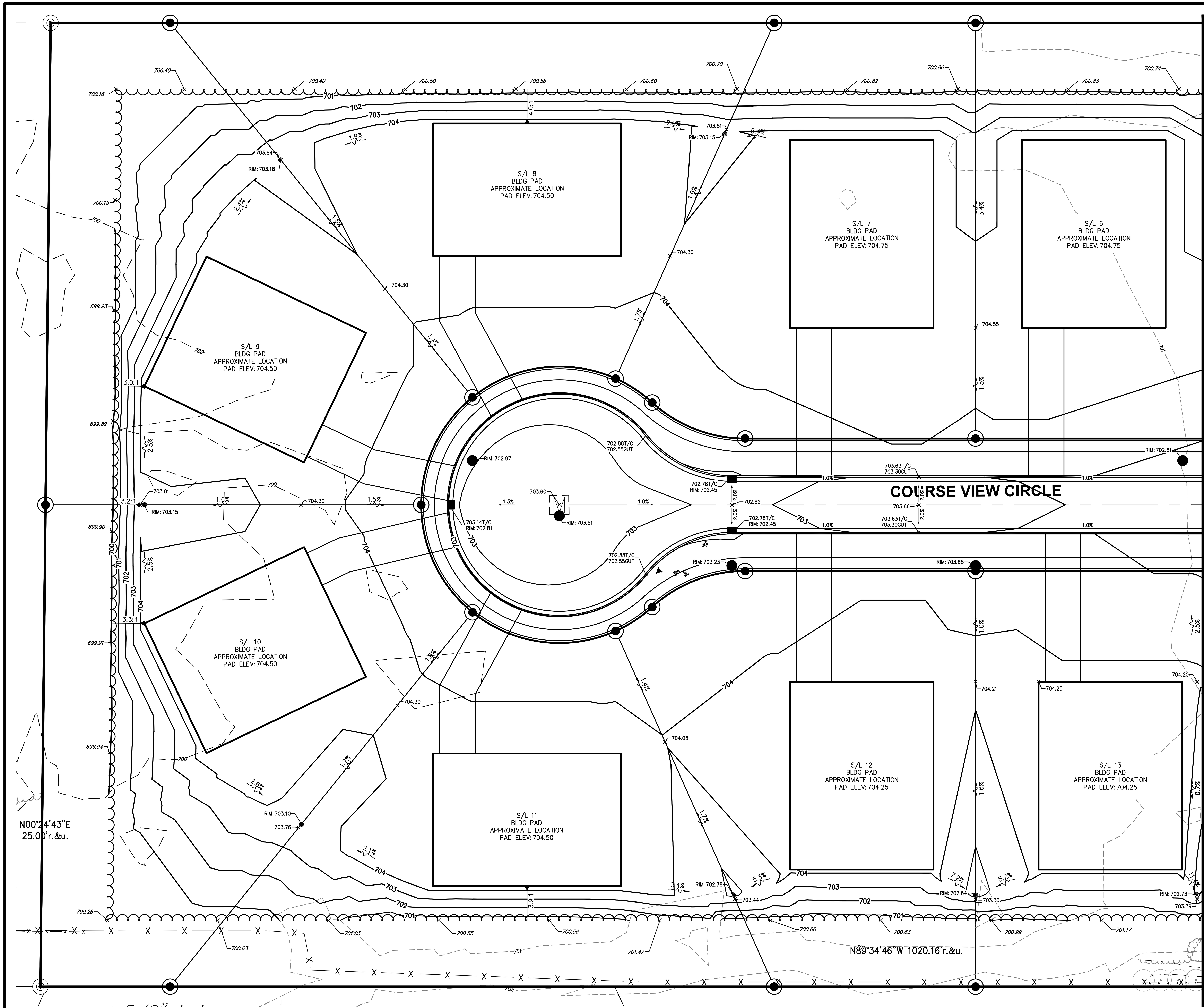
6405 York Road | Parma Heights, Ohio 44130
t 440.884.1151 | f 440.884.1154
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	10-17-25	CITY PLANNING DEPT. REVIEW
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

SHEET NO.
C3.0



GRADING LEGEND

Symbol	Description
XXX (solid)	PROPOSED 1' CONTOUR
XXX (bold)	PROPOSED 5' CONTOUR
XXX (dashed)	EXISTING 1' CONTOUR
XXX (dashed)	EXISTING 5' CONTOUR
1XXX.XX T/C 1XXX.XX GUT	PROPOSED TOP OF CURB PROPOSED GUTTER
1XXX.XX	PROPOSED SPOT GRADE
1.0%	FLOW DIRECTION ARROW
2:1	PROPOSED GROUND SLOPE
1XXX.XX	EXISTING SPOT GRADE

NORTH

SCALE
1 INCH = 20 FEET
24 x 36
SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SITE GRADING PLAN - WEST

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
6405 York Road | Parma Heights, Ohio 44130
Tel 440.884.3100 | Fax 440.884.3104
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

SHEET NO.
C3.1

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GRADING LEGEND

XXX	PROPOSED 1' CONTOUR
XXX	PROPOSED 5' CONTOUR
XXX	EXISTING 1' CONTOUR
XXX	EXISTING 5' CONTOUR
1XXX.XX T/C 1XXX.XX GUT	PROPOSED TOP OF CURB PROPOSED GUTTER
1XXX.XX	PROPOSED SPOT GRADE
1.0%	FLOW DIRECTION ARROW
2:1	PROPOSED GROUND SLOPE
1XXX.XX	EXISTING SPOT GRADE

40 20 10 0
SCALE
1 INCH = 20 FEET
24 x 36
SHEETS ONLY

NORTH

MATCHLINE - SHEET C3.2

S/L 5
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.75

S/L 4
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.75

S/L 3
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.75

S/L 2
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 705.00

S/L 1
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 705.00

DETENTION POND
APPROXIMATE LOCATION
TOP OF POND: 703.00
100-YR ELEV: 701.33
TOP OF PERM POOL: 699.00
BTM OF POND: 694.00

15' EMERGENCY SPILLWAY
CREST ELEV = 702.00

LOT SPLIT & CONSOLIDATION PLAT FOR
THE LAKEWOOD COUNTRY CLUB COMPANY
A.F.N. 202406280045 C.C.M.R.

COURSE VIEW CIRCLE

HILLIARD BOULEVARD 100'

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SITE GRADING PLAN - EAST

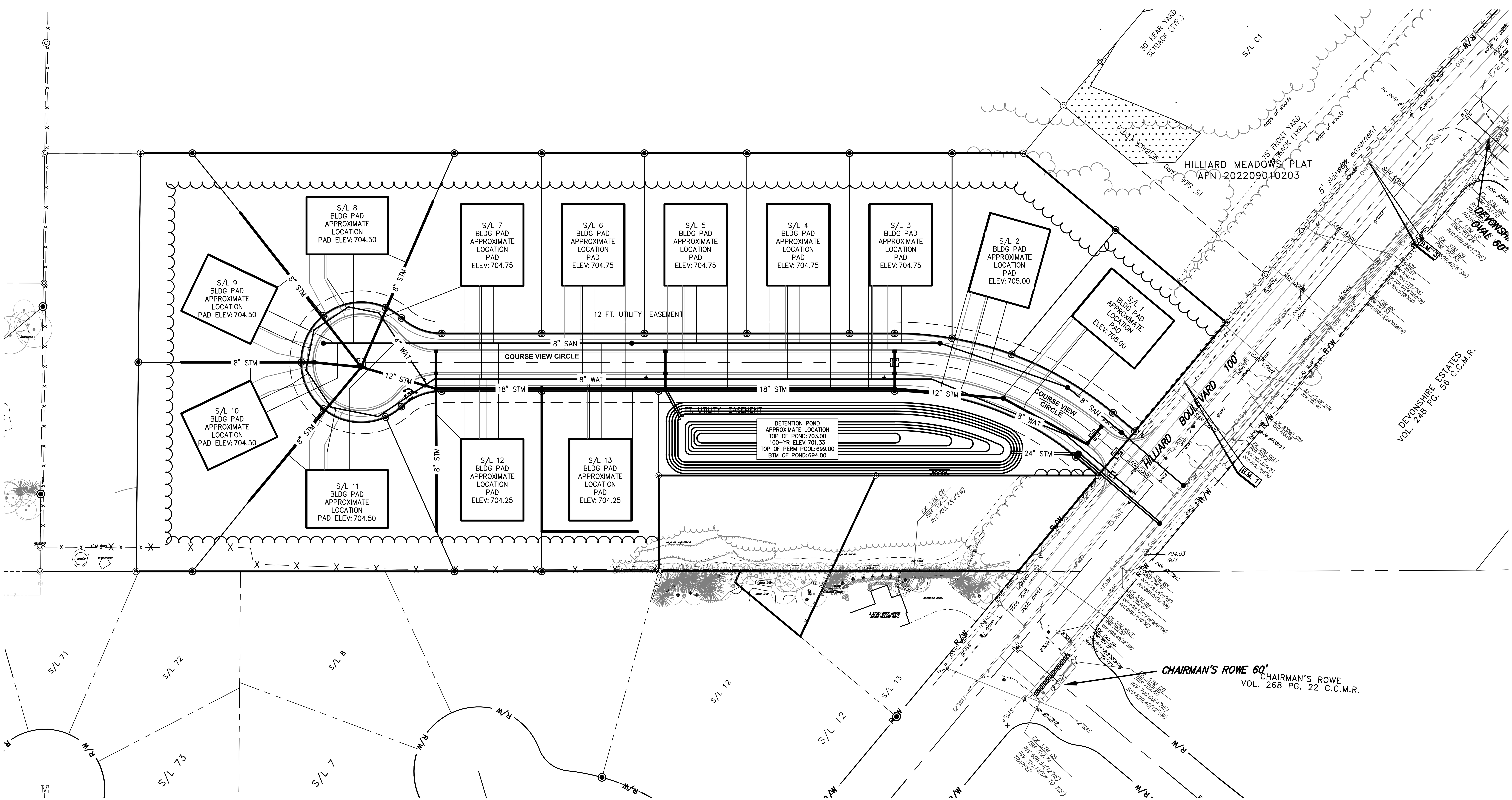
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

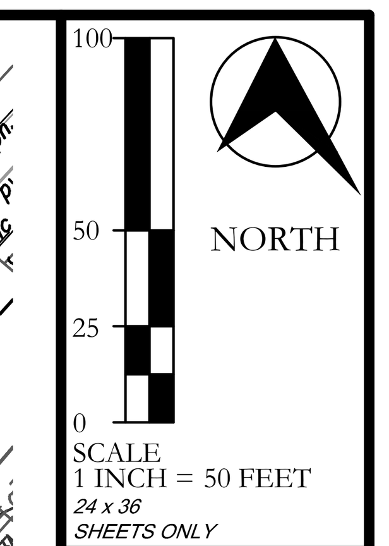
NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
(440) 884-5151 | (440) 884-5154
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

SHEET NO.
C3.2





THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

OVERALL SITE UTILITY PLAN

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL
	10-17-25	CITY PLANNING DEPT. REVIEW
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

SHEET NO.
C4.0

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KEY NOTES

1. 4" VALVE
2. 8" VALVE
3. 4" x 8" TEE
4. 6" x 8" TEE
5. 4" 45° BEND
6. 12" VALVE
7. PROPOSED HYDRANT AND VALVE ASSEMBLY
8. 4" TO 8" REDUCER
9. ANTI-SEEP COLLAR, SEE DET ON SHT C7.7
10. STREET LIGHT, SEE ELEC. COMPANY DRAWINGS.
11. CUT-IN-TEE
12. 8" 11.25° BEND
13. 8" 22.5° BEND

SCALE
1 INCH = 20 FEET
24 x 36
SHEETS ONLY

NORTH

A-5.2
8" YD
RIM=703.18
INV.=700.67(12"SE)

A-5.1
8" YD
RIM=703.15
INV.=700.62(12"SW)

S/L 8
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.50

S/L 7
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.75

S/L 6
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.75

S/L 9
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.50

105LF 12"STM @ 0.30%

156LF 12"STM @ 0.30%

A-4.2
2'X3' IB
RIM=702.98
INV.=699.93(12"S)

12 FT. UTILITY EASEMENT

D-5.0
4' DIA MH
RIM=702.97
INV.=692.14 (8" E)

D-4.0
4' DIA MH
RIM=702.81
INV.=690.73 (8" W)
INV.=690.73 (8" E)

321LF 8"SAN @ 0.44%

138LF 12"STM @ 0.30%

25LF 12"STM @ 0.30%

A-4.1
2'X3' IB
RIM=702.45
INV.=699.86(12"N)
INV.=699.86(12"S)

COURSE VIEW CIRCLE

A-6.1
8" YD
RIM=703.15
INV.=700.62(12"E)

A-6.0
2'X3' IB
RIM=702.81
INV.=700.21(12"E)
INV.=700.21(12"W)

50LF 12"STM @ 0.30%

84LF 12"STM @ 0.30%

A-5.0
4' DIA MH
RIM=703.51
INV.=700.06(12"E)
INV.=700.06(12"W)
INV.=700.06(12"SW)
INV.=700.06(12"NW)
INV.=700.06(12"NE)

8" WAT (C900)

15LF 12"STM @ 0.30%

110LF 18"STM @ 0.30%

129LF 18"STM @ 0.30%

A-9.0
4' DIA MH
RIM=703.68
INV.=699.48(18"W)
INV.=699.48(18"E)
INV.=699.48(12"S)

A-4.0
4' DIA MH
RIM=703.23
INV.=699.81(18"E)
INV.=699.81(12"N)
INV.=699.81(12"S)
INV.=699.81(12"W)

S/L 10
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.50

182LF 12"STM @ 0.30%

149LF 12"STM @ 0.30%

149LF 12"STM @ 0.30%

S/L 12
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.25

S/L 13
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.25

A-5.3
8" YD
RIM=703.10
INV.=700.60(12"NE)

S/L 11
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.50

A-4.3
8" YD
RIM=702.78
INV.=700.26(12"N)

100LF 12"STM @ 0.30%

A-9.1
8" YD
RIM=702.64
INV.=699.93(12"N)
INV.=699.93(12"E)

A-9.2
8" YD
RIM=702.73
INV.=700.23(12"W)

N00°24'43"E
25.00'r.&u.

N89°34'46"W 1020.16'r.&u.

MATCHLINE - SHEET C4.2

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SITE UTILITY PLAN - WEST

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
440.884.5151 | 440.884.5154
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

SHEET NO.
C4.1

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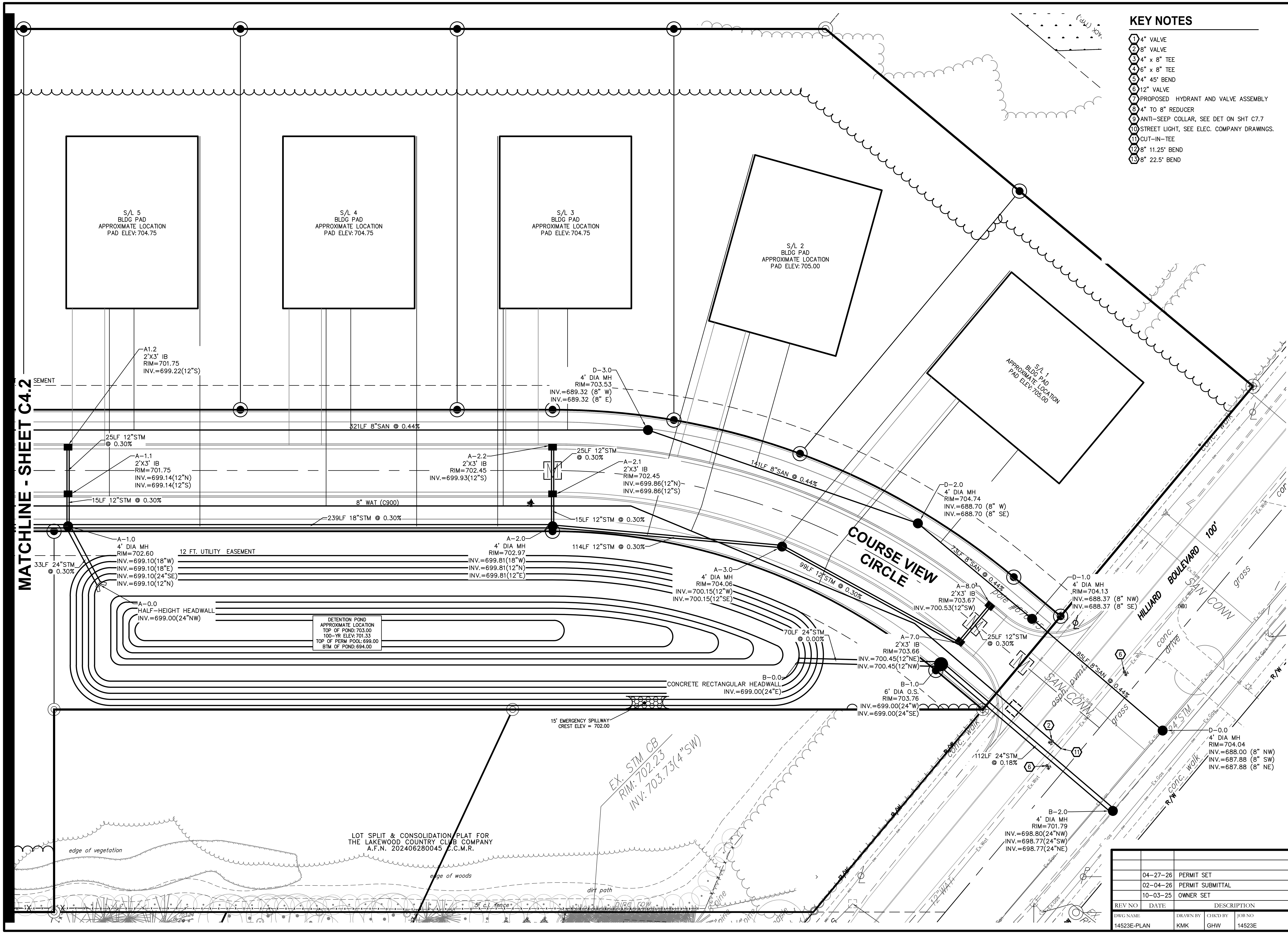
KEY NOTES
1 4" VALVE
2 8" VALVE
3 4" x 8" TEE
4 6" x 8" TEE
5 4" 45° BEND
6 12" VALVE
7 PROPOSED HYDRANT AND VALVE ASSEMBLY
8 4" TO 8" REDUCER
9 ANTI-SEEP COLLAR, SEE DET ON SHT C7.7
10 STREET LIGHT, SEE ELEC. COMPANY DRAWINGS.
11 CUT-IN-TEE
12 8" 11.25° BEND
13 8" 22.5° BEND
NORTH
SCALE
1 INCH = 20 FEET
24 x 36
SHEETS ONLY
S/L 5
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.75
S/L 4
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.75
S/L 3
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 704.75
S/L 2
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 705.00
S/L 1
BLDG PAD
APPROXIMATE LOCATION
PAD ELEV: 705.00
MATCHLINE - SHEET C4.2
A1.2
2'X3' IB
RIM=701.75
INV.=699.22(12"S)
D-3.0
4' DIA MH
RIM=703.53
INV.=689.32 (8" W)
INV.=689.32 (8" E)
321LF 8"SAN @ 0.44%
25LF 12"STM
@ 0.30%
A-1.1
2'X3' IB
RIM=701.75
INV.=699.14(12"N)
INV.=699.14(12"S)
A-2.2
2'X3' IB
RIM=702.45
INV.=699.93(12"S)
25LF 12"STM
@ 0.30%
A-2.1
2'X3' IB
RIM=702.45
INV.=699.86(12"N)
INV.=699.86(12"S)
141LF 8"SAN @ 0.44%
15LF 12"STM @ 0.30%
8" WAT (C900)
239LF 18"STM @ 0.30%
15LF 12"STM @ 0.30%
D-2.0
4' DIA MH
RIM=704.74
INV.=688.70 (8" W)
INV.=688.70 (8" SE)
A-1.0
4' DIA MH
RIM=702.60
INV.=699.10(18"W)
INV.=699.10(18"E)
INV.=699.10(24"SE)
INV.=699.10(12"N)
12 FT. UTILITY EASEMENT
33LF 24"STM
@ 0.30%
A-2.0
4' DIA MH
RIM=702.97
INV.=699.81(18"W)
INV.=699.81(12"N)
INV.=699.81(12"E)
114LF 12"STM @ 0.30%
COURSE VIEW CIRCLE
A-3.0
4' DIA MH
RIM=704.06
INV.=700.15(12"W)
INV.=700.15(12"SE)
99LF 12"STM @ 0.30%
73LF 8"SAN @ 0.44%
D-1.0
4' DIA MH
RIM=704.13
INV.=688.37 (8" NW)
INV.=688.37 (8" SE)
A-8.0
2'X3' IB
RIM=703.67
INV.=700.53(12"SW)
HILLIARD BOULEVARD 100'
A-0.0
HALF-HEIGHT HEADWALL
INV.=699.00(24"NW)
DETENTION POND
APPROXIMATE LOCATION
TOP OF POND: 703.00
100-YR ELEV: 701.33
TOP OF PERM POOL: 699.00
BTM OF POND: 694.00
70LF 24"STM
@ 0.00%
25LF 12"STM
@ 0.30%
A-7.0
2'X3' IB
RIM=703.66
INV.=700.45(12"NE)
INV.=700.45(12"NW)
B-0.0
CONCRETE RECTANGULAR HEADWALL
INV.=699.00(24"E)
B-1.0
6' DIA O.S.
RIM=703.76
INV.=699.00(24"W)
INV.=699.00(24"SE)
85LF 8"SAN @ 0.44%
15' EMERGENCY SPILLWAY
CREST ELEV = 702.00
EX. STM CB
RIM: 702.23
INV: 703.73(4"SW)
112LF 24"STM
@ 0.18%
D-0.0
4' DIA MH
RIM=704.04
INV.=688.00 (8" NW)
INV.=687.88 (8" SW)
INV.=687.88 (8" NE)
B-2.0
4' DIA MH
RIM=701.79
INV.=698.80(24"NW)
INV.=698.77(24"SW)
INV.=698.77(24"NE)
LOT SPLIT & CONSOLIDATION PLAT FOR
THE LAKEWOOD COUNTRY CLUB COMPANY
A.F.N. 202406280045 C.C.M.R.
edge of vegetation
edge of woods
dirt path
5' c.l. fence
conc. walk
conc. drive
grass
SAN CONN
R/W
12"WAT

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SITE UTILITY PLAN - EAST

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
6405 York Road | Parma Heights, Ohio 44130
Tel 440.884.3100 | Fax 440.884.3104
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

SHEET NO.
C4.2

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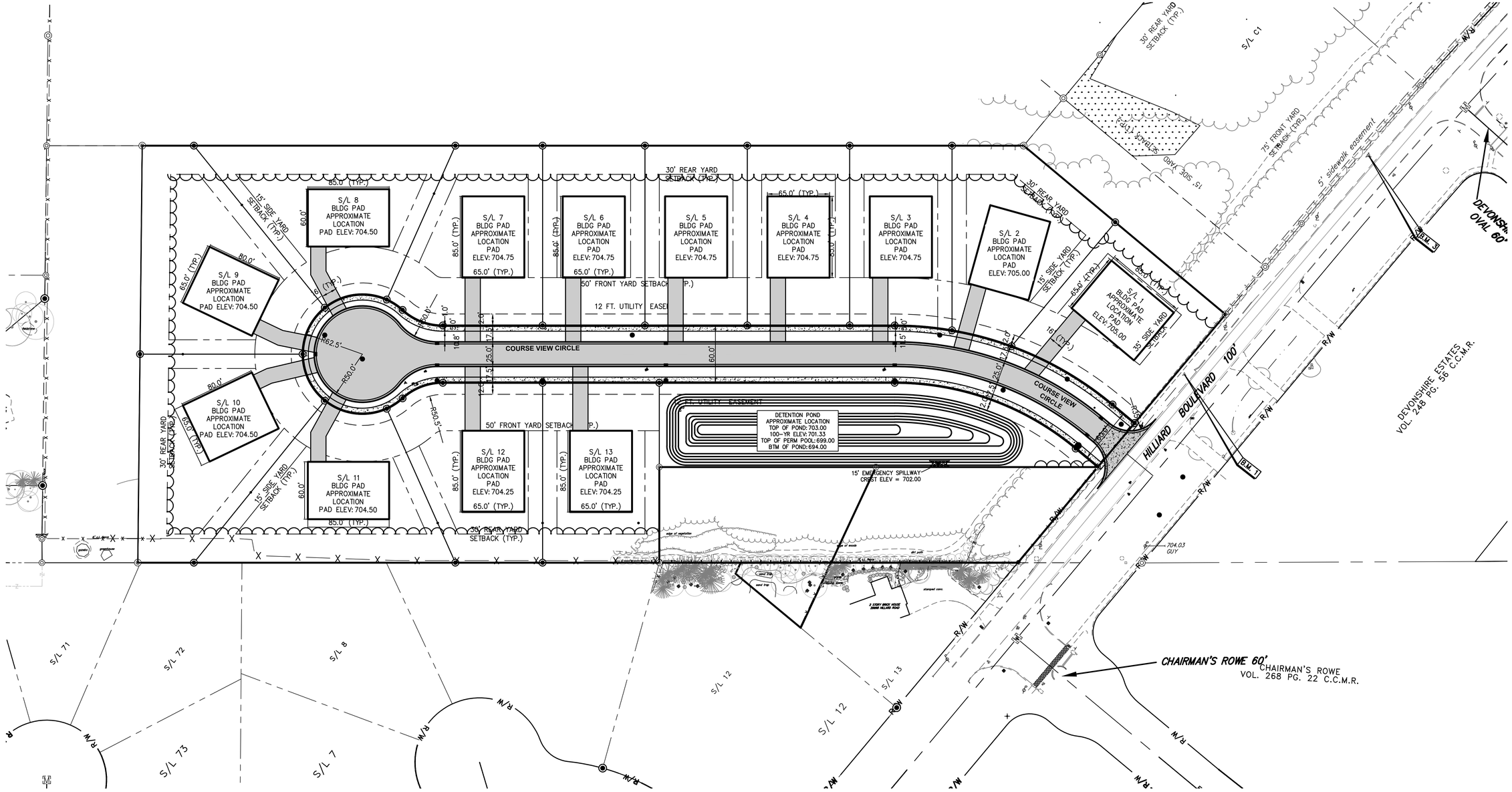
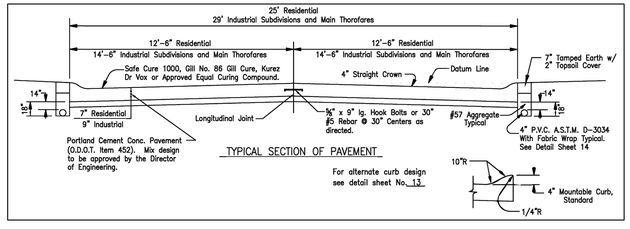




THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

OVERALL SITE LAYOUT PLAN

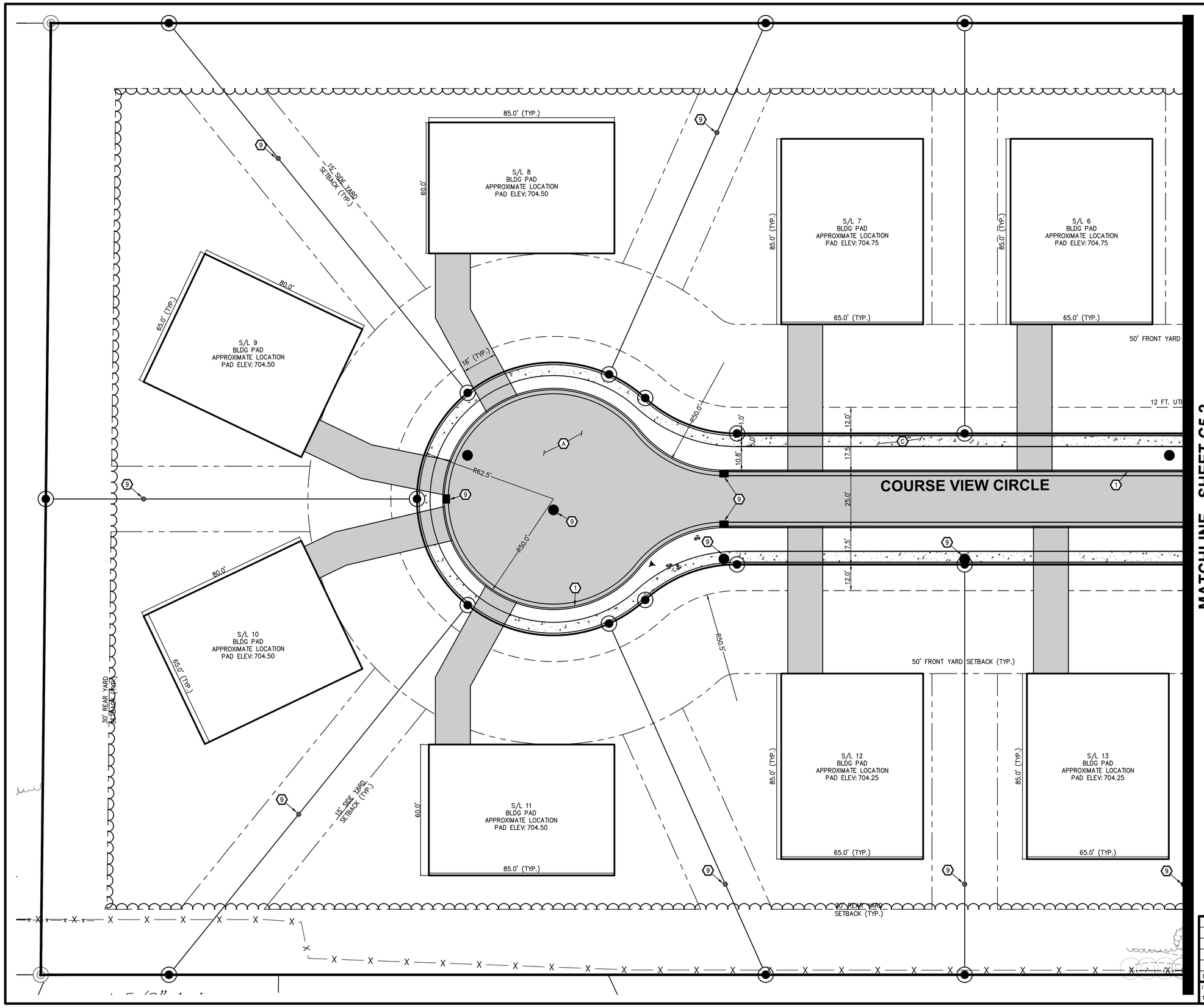
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
440.884.5700 | Fax 440.884.5764
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

SHEET NO.
C5.0



KEY NOTES

1. 4" MOUNTABLE CONCRETE CURB
2. ADA ACCESSIBLE PARKING SYMBOL
3. ADA ACCESSIBLE RAMP
4. NOT USED
5. NOT USED
6. PEDESTRIAN CROSSWALK
7. NOT USED
8. 30" STOP SIGN
9. STORM STRUCTURE, SEE UTILITY C4.0
10. RELOCATED POWER/LIGHT POLE
11. LIGHT POLE
12. PROPOSED MAILBOX CLUSTER

A — HEAVY DUTY ASPHALT PAVEMENT

B — STANDARD DUTY ASPHALT PAVEMENT

C — CONCRETE PAVEMENT

40 20 10 0
NORTH
SCALE
1 INCH = 20 FEET
24 x 36
SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SITE LAYOUT PLAN - WEST

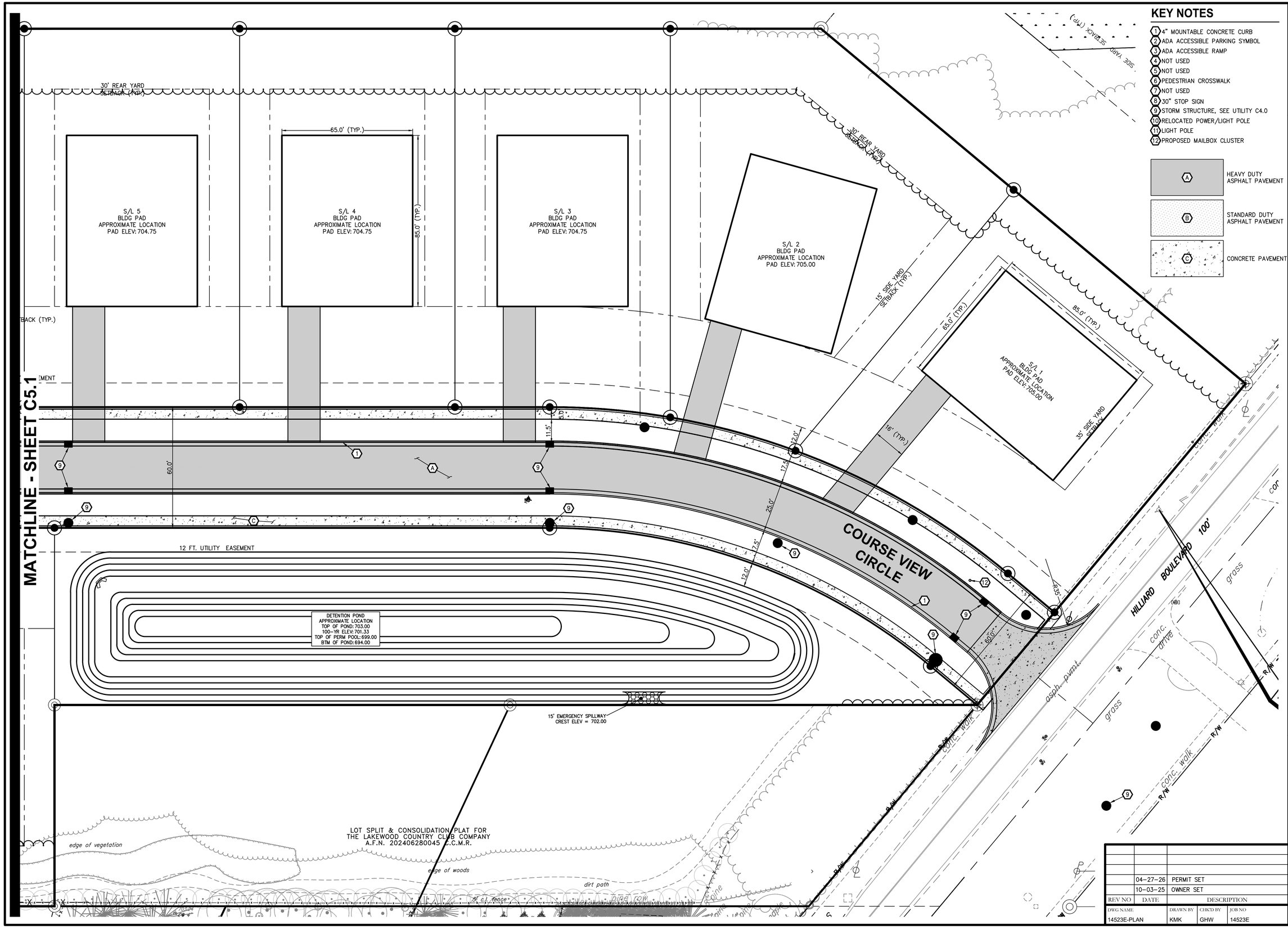
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
440.845.2100 | Fax: 440.845.2044
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

SHEET NO.
C5.1



KEY NOTES

1. 4" MOUNTABLE CONCRETE CURB
2. ADA ACCESSIBLE PARKING SYMBOL
3. ADA ACCESSIBLE RAMP
4. NOT USED
5. NOT USED
6. PEDESTRIAN CROSSWALK
7. NOT USED
8. 30" STOP SIGN
9. STORM STRUCTURE, SEE UTILITY C4.0
10. RELOCATED POWER/LIGHT POLE
11. LIGHT POLE
12. PROPOSED MAILBOX CLUSTER

A — HEAVY DUTY ASPHALT PAVEMENT

B — STANDARD DUTY ASPHALT PAVEMENT

C — CONCRETE PAVEMENT

NORTH

SCALE
1 INCH = 20 FEET
24 x 36 SHEETS ONLY

SITE LAYOUT PLAN - EAST

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
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440.884.5001 | Fax 440.884.5154
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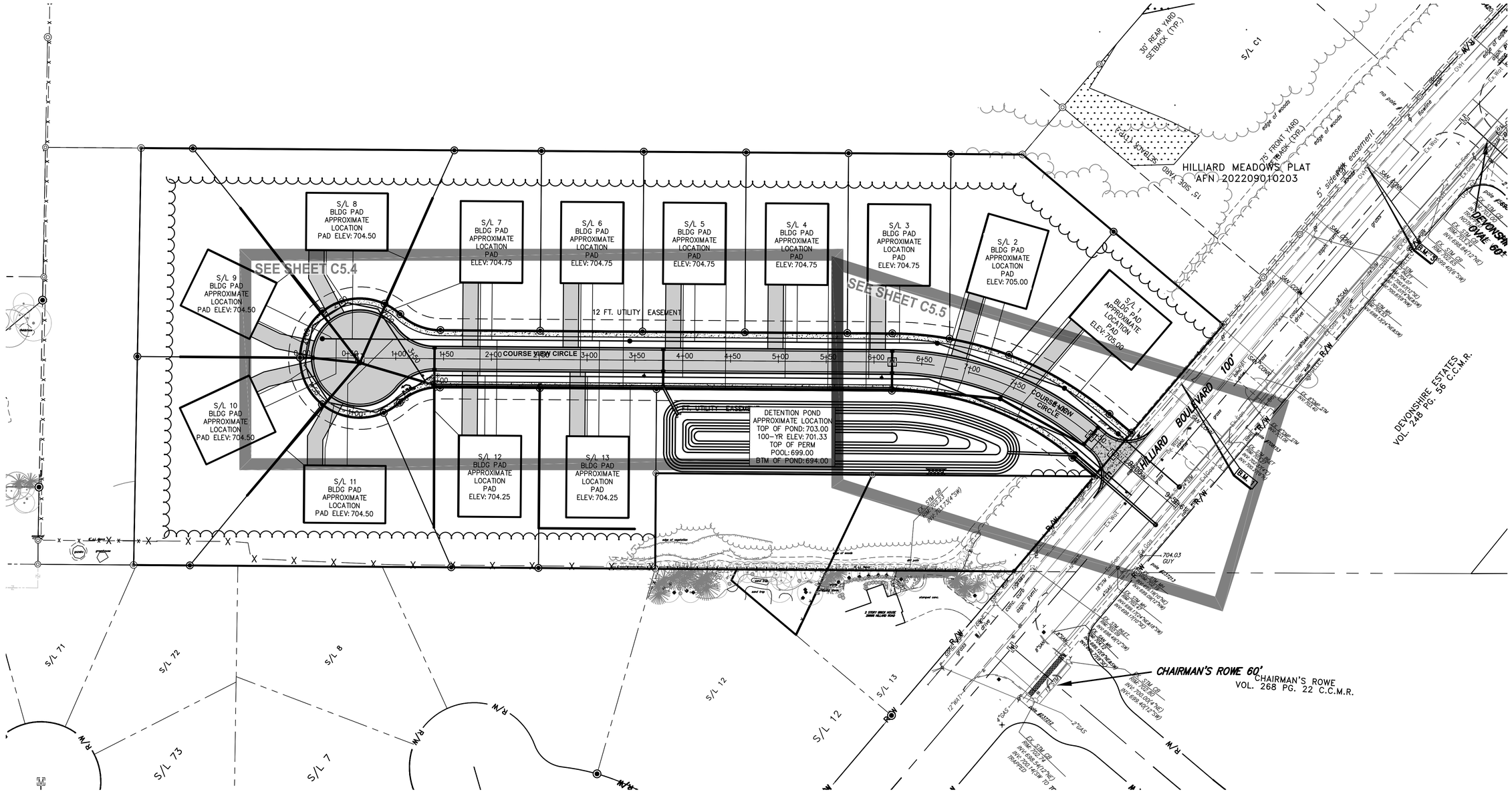
REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	10-03-25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLAN	KMK	GHW	14523E

SHEET NO.
C5.2



100
50
25
0
NORTH
SCALE
1 INCH = 50 FEET
24 x 36 SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

OVERALL PLAN & PROFILE SHEET

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

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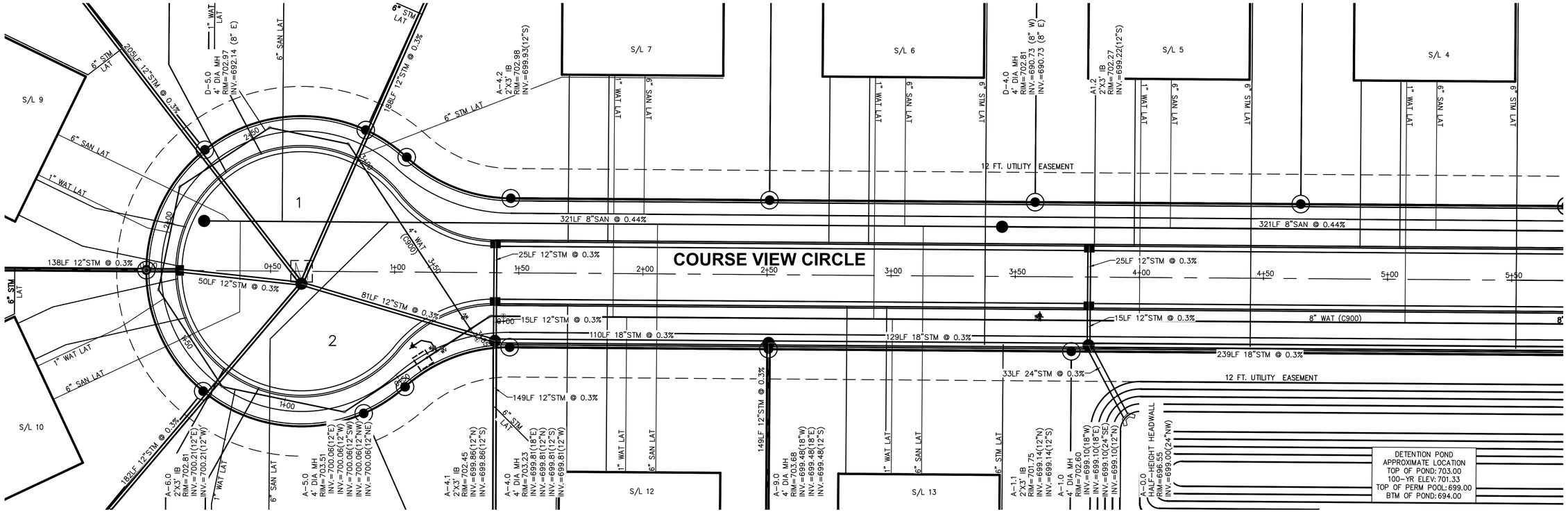
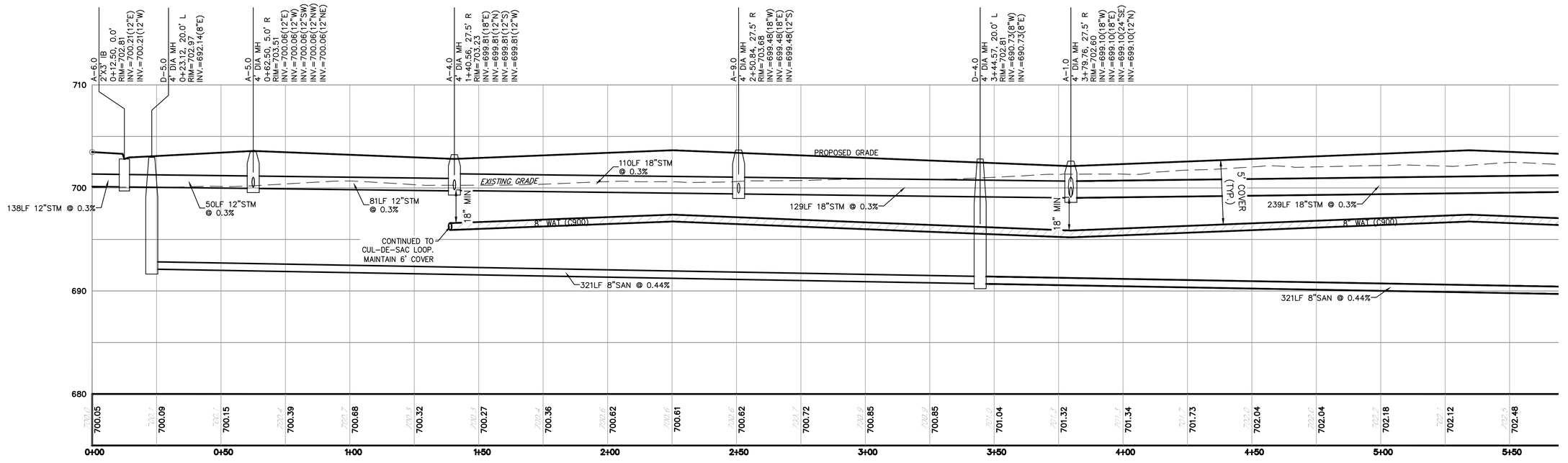
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
440.884.1151 | Fax 440.884.1154
www.neffassoc.com

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLPR	KMK	GHW	14523E

SHEET NO.
C5.3





COURSE VIEW CIRCLE CENTERLINE PROFILE

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'

40 20 10 0
NORTH
SCALE
1 INCH = 20 FEET
24 x 36
SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

ROADWAY PLAN & PROFILE - STA 0+00 TO 5+50

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

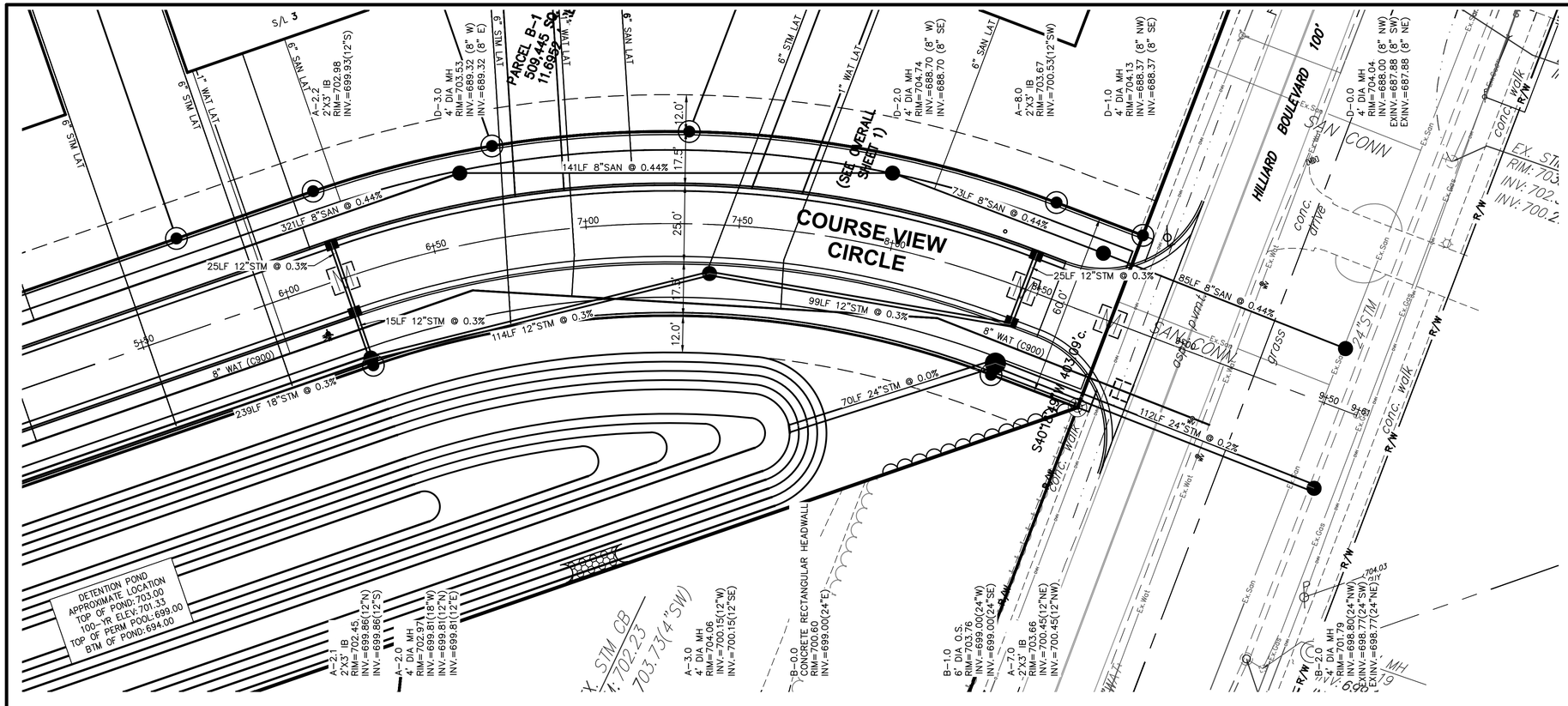
NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
t: 440.884.1151 | f: 440.884.1154
www.neffassoc.com

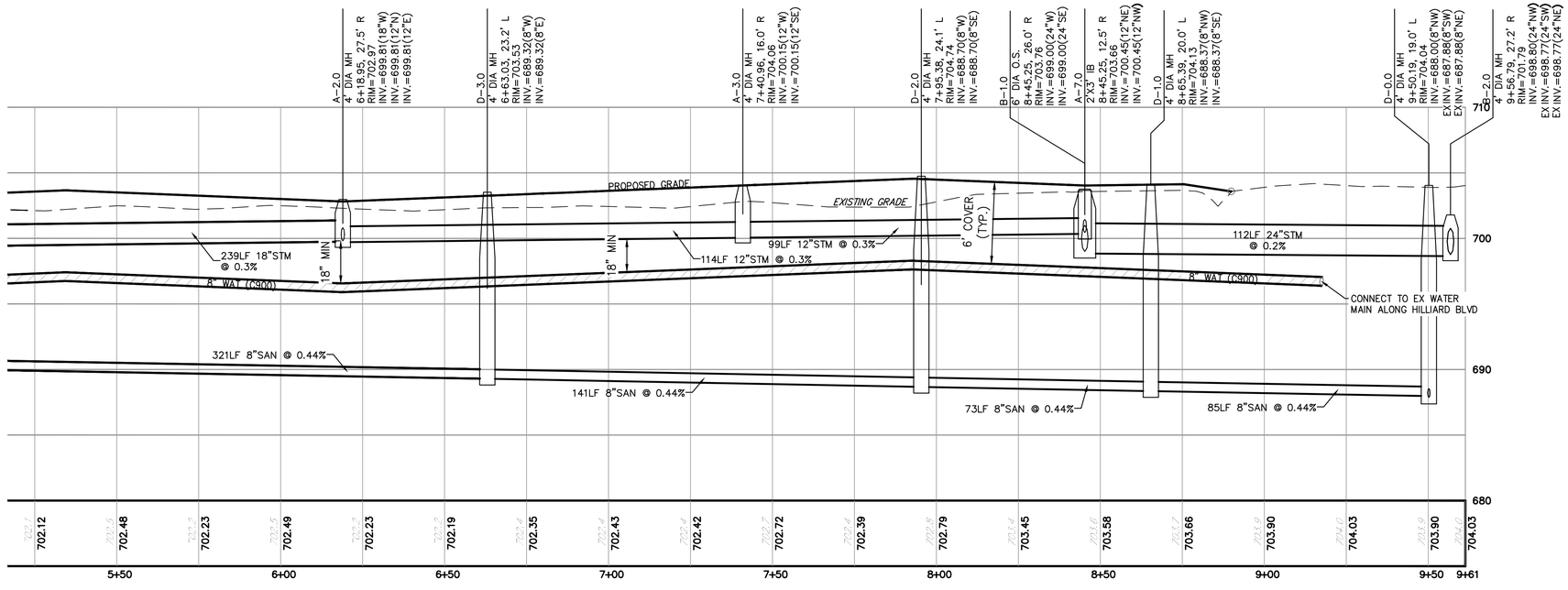
REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLPR	KMK	GHW	14523E

SHEET NO.
C5.4

N:\LAND DEVELOPMENT\Proj\14523E The Greens Subdivision\AutoCAD\14523E-PLPR.dwg, 4/28/2026 11:21:00 AM, KKraus





COURSE VIEW CIRCLE CENTERLINE PROFILE

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'

40 20 10 0
NORTH
SCALE
1 INCH = 20 FEET
24 x 36
SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

ROADWAY PLAN & PROFILE - STA 5+50 TO 9+61

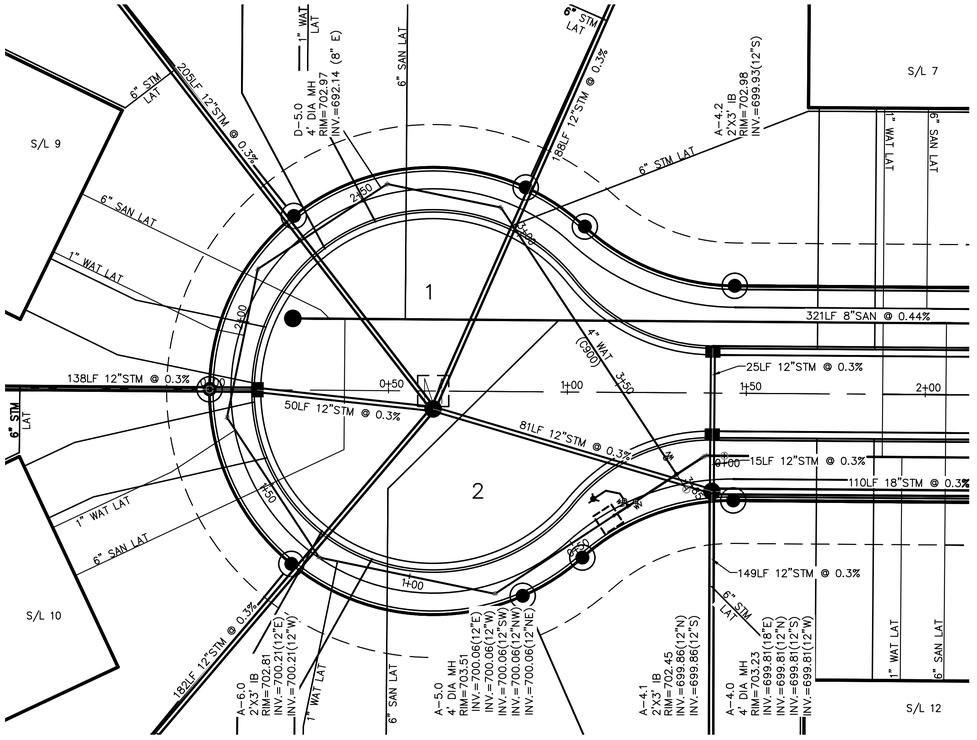
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
(440) 884-3311 | (440) 884-3354
www.neffassocs.com

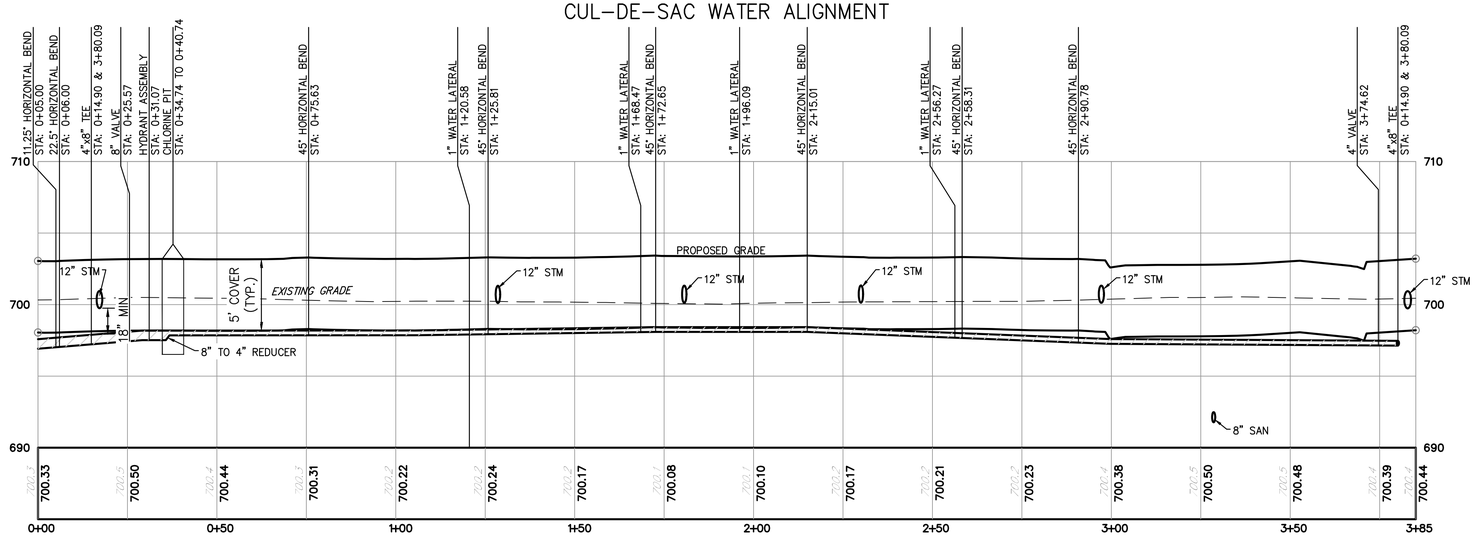
REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLPR	KMK	GHW	14523E

SHEET NO.
C5.5



CUL-DE-SAC WATER ALIGNMENT



COURSE VIEW CIRCLE CENTERLINE PROFILE

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'

NORTH
SCALE
1 INCH = 20 FEET
24 x 36
SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

WATER CUL-DE-SAC PLAN & PROFILE - STA 0+00 TO 3+85

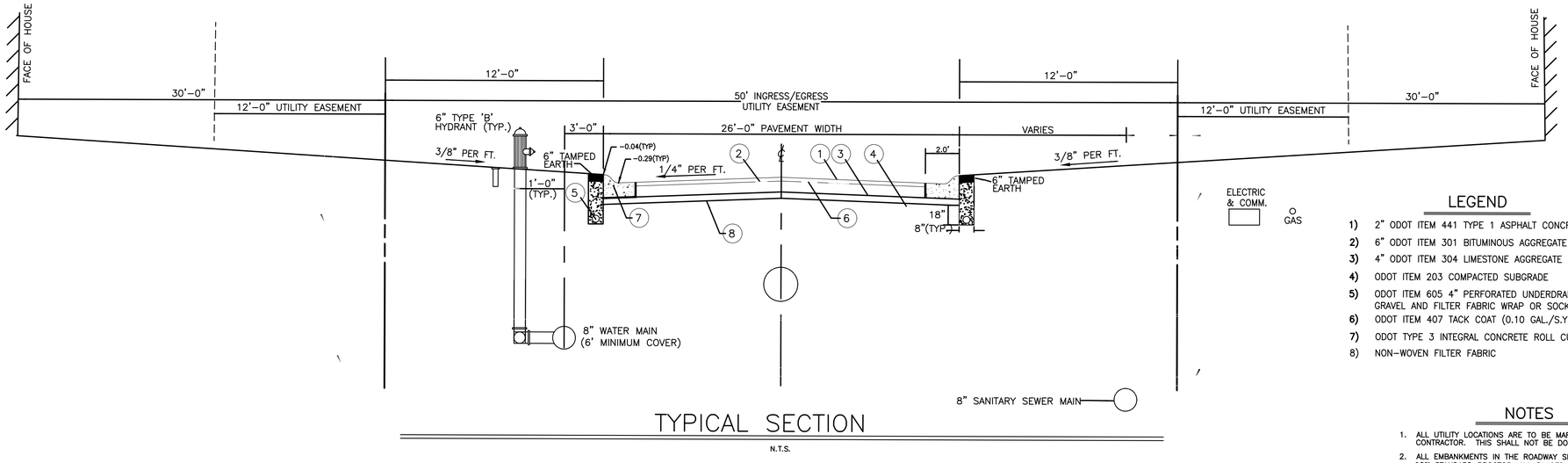
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
(440) 884-5151 | Fax (440) 884-5154
www.neff-assoc.com

SHEET NO.
C5.6

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-PLPR	KMK	GHW	14523E



TYPICAL SECTION

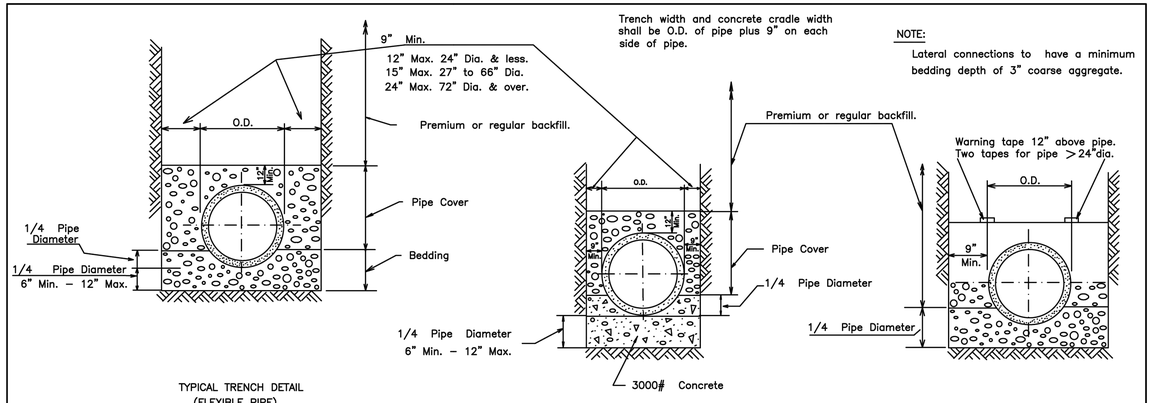
N.T.S.

LEGEND

1) 2" ODOT ITEM 441 TYPE 1 ASPHALT CONCRETE SURFACE COURSE
2) 6" ODOT ITEM 301 BITUMINOUS AGGREGATE BASE (CONSTRUCT IN TWO LIFTS)
3) 4" ODOT ITEM 304 LIMESTONE AGGREGATE BASE
4) ODOT ITEM 203 COMPACTED SUBGRADE
5) ODOT ITEM 605 4" PERFORATED UNDERDRAIN (SDR-35) WITH #57 AGGREGATE STONE OR GRAVEL AND FILTER FABRIC WRAP OR SOCK (ODOT 712.09 TYPE A)
6) ODOT ITEM 407 TACK COAT (0.10 GAL./S.Y.)
7) ODOT TYPE 3 INTEGRAL CONCRETE ROLL CURB (SEE DETAIL THIS SHEET)
8) NON-WOVEN FILTER FABRIC

NOTES

1. ALL UTILITY LOCATIONS ARE TO BE MARKED ON THE CURB BY THE CONTRACTOR. THIS SHALL NOT BE DONE WITH A CONCRETE SAW.
2. ALL EMBANKMENTS IN THE ROADWAY SHALL BE COMPACTED TO 98% STANDARD PROCTOR. ALL PLACED FILL MATERIAL THAT WILL BE BUILT UPON, (PAVEMENT, STRUCTURES, ETC.) WILL REQUIRE A GEOTECHNICAL REPORT FOR ACCEPTANCE OF GRADE PRIOR TO CONSTRUCTION.
3. NO SLAG IS TO BE USED IN THE CONSTRUCTION OF THIS SUBDIVISON.



TYPICAL TRENCH DETAIL (FLEXIBLE PIPE)

TYPICAL TRENCH DETAIL WITH CONCRETE CRADLE

TYPICAL TRENCH DETAIL FOR CONCRETE OR DUCTILE IRON PIPE

Pipe Cover shall consist of coarse interlocking aggregate no. 57,6,67,68,7,78,or8.

Bedding shall consist of coarse interlocking aggregate no.57,6,67, 68, 7, 78, or 8 for 60" or smaller diameter pipe. For 66" or larger diameter pipe no. 4 aggregate may also be used.

Premium Backfill shall consist of coarse interlocking aggregate no. 57,6,67,68,7,78,8,304, also limestone screenings.

For concrete and ductile iron pipe, pipe cover is to the springline or greater.

In paved areas coarse interlocking aggregate to the top of the trench on all types of pipe.

TYPICAL TRENCH DETAILS

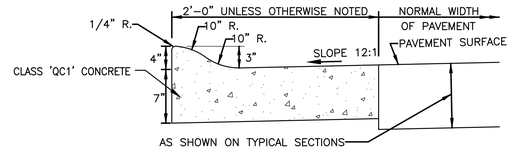
REVISIONS:

SCALE NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 12



TYPE 3 INTEGRAL CONCRETE ROLL CURB

NO SCALE

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

TYPICAL SECTION DETAILS

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
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REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

SHEET NO.
C7.0

REFERENCE STANDARDS
1. ASTM A276- STAINLESS STEEL BARS AND SHAPES
2. ASTM A193/A194- ALLOY-STEEL AND STAINLESS-STEEL BOLTING FOR HIGH TEMPERATURE OR HIGH-PRESSURE SERVICE AND OTHER SPECIAL PURPOSE APPLICATIONS
3. ASTM A536- DUCTILE IRON CASTINGS
4. ASTM A1097- STEEL CASING PIPE, CARBON, ELECTRIC-FUSION (ARC)-WELDED (NPS 10 AND LARGER)
5. ASTM D2774- STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING
6. ASTM F1668- STANDARD GUIDE FOR CONSTRUCTION PROCEDURES FOR BURIED PLASTIC
7. ANSI/AWWA C111- RUBBER-GASKET JOINTS FOR DUCTILE IRON PRESSURE PIPE AND FITTINGS
8. ANSI/AWWA C151-DUCTILE-IRON PIPE, CENTRIFUGALLY CAST
9. ANSI/AWWA C153- DUCTILE IRON COMPACT FITTINGS
10. ANSI/AWWA C110- DUCTILE IRON FLANGED FITTINGS
11. AWWA C219- BOLTED SLEEVE-TYPE COUPLINGS FOR PLAIN-END PIPE
12. AWWA C509- RESILIENT-SEATED GATE VALVES FOR WATER SUPPLY SERVICE
13. AWWA C515- REDUCED-WALL, RESILIENT-SEATED GATE VALVES FOR WATER SUPPLY SERVICE
14. AWWA C900- POLYVINYL CHLORIDE PVC PRESSURE PIPE AND FABRICATED FITTINGS
15. AWWA C909- MOLECULARLY ORIENTED POLYVINYL CHLORIDE
16. ODOT 499- CONCRETE

DUCTILE IRON PIPE
1. ALL PIPE SHALL BE AWWA C151 DUCTILE IRON, MINIMUM CLASS 52, WITH A CEMENT MORTAR LINING, HAVING PUSH-ON JOINTS WITH RADIALLY COMPRESSED RUBBER RING GASKET. MAINS 36" AND LARGER SHALL BE MINIMUM PRESSURE CLASS 350.

PVC PIPE
1. AWWA C900 CLASS 235 PSI (DR18) *OR* AWWA C909 CLASS 235 PSI (DR18)
2. INSIDE DIAMETER: NO LARGER THAN 12", NO SMALLER THAN 4".

GATE VALVES
1. AWWA C509 *OR* C515 APPROVED MODEL RESILIENT SEATED GATE VALVES
2. VALVE OPERATING NUTS: TAPERED (1 7/8" TO 2" FROM TOP TO BOTTOM) AND 2" DEEP
3. MIDDLE RING AND FOLLOWER GLANDS TO BE DUCTILE IRON ASTM A536

AIR RELIEF VALVES
1. AIR RELIEF VALVE COMPONENT PARTS SHALL CONFORM TO AWWA C800 AND ASTM B584 FOR MATERIALS THAT COME INTO CONTACT WITH POTABLE WATER.
2. VALVE INLET AND OUTLET SIZE SHALL BE 2". INSTALL ***ONLY*** CLEVELAND WATER-APPROVED AIR RELIEF VALVE PRODUCTS.

HYDRANTS
1. INSTALL ***ONLY*** CLEVELAND WATER-APPROVED HYDRANT MODELS .
2. HYDRANTS SHALL BE FACTORY EQUIPPED WITH THE APPROPRIATE HYDRANT NOZZLE, INCLUDING STORZ IF REQUESTED BY THE LOCAL MUNICIPALITY.
3. INSTALL ALL HYDRANTS WITH APPROVED PVC PIPE (ITEM 2) AND AWWA C509 6" RW GATE VALVES .
4. HYDRANT CONNECTIONS ARE TO BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS WITH ROD AND CLAMPS AS DIRECTED BY CLEVELAND WATER.
5. HYDRANT BRANCHES TO BE FULLY RESTRAINED. IF BRANCH IS SHORTENED, USE ONLY 1 SLEEVE OR COUPLING WITH NO NEW PIPE REQUIRED.
6. MIDDLE RING AND FOLLOWER GLANDS TO BE EITHER STEEL OR DUCTILE IRON ASTM A536.
7. FLUSHING HYDRANTS SHALL CONSIST OF 2" FIP VERTICAL INLET, 2" MIP OUTLET AND BE SELF-DRAINING. FLUSHING HYDRANT SHALL BE FULLY OPERABLE AND SERVICEABLE FROM ABOVE GROUND. EQUAL TO KUPERFERLE TRUFLO MODEL NO. TF500.

COMPRESSION COUPLINGS - VALVES AND HYDRANTS
1. CLASS 250 AWWA C219 GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END PIPE
2. MINIMUM WORKING PRESSURE: 250 PSI
3. EQUAL TO DRESSER STYLE NO. 38, 138, OR 162 (TRANSITION TYPE) OR ROMAC 501/ SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.
4. EACH COUPLING TO CONSIST OF 1 DUCTILE IRON MIDDLE RING WITHOUT STOPS (ASTM-A536), 2 DUCTILE IRON FOLLOWER GLANDS (ASTM A536), 2 RUBBER COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS, AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS OF ASTM A276/A193/194 TYPE 304 EXTRA HEAVY HEX TO PROPERLY COMPRESS THE GASKETS.

FITTINGS/JOINTS
1. ALL FITTINGS/JOINTS TO BE APPROVED DUCTILE IRON, CLASS 350, CEMENT LINED, OR FUSION BONDED EPOXY COATED (UNLESS OTHERWISE CALLED FOR ON PLANS) .
2. ALL FITTINGS TO BE RESTRAINED USING A "RETAINED" MECHANICAL JOINT CONFORMING TO THE MATERIAL AND PERFORMANCE REQUIREMENTS OF ANSI/AWWA C110/A21.10 AND ANSI/AWWA C111/A21.11, OR "COMPACT" FITTINGS IN ACCORDANCE WITH ANSI/AWWA C153/A21.53.
3. MUST HAVE APPROVED "TYPE I" OR "TYPE II" BOLTLESS RESTRAINED PUSH-ON JOINTS TO THE LIMITS SHOWN ON THE DRAWINGS.
4. ALL FITTINGS ARE TO HAVE BELL ENDS.

GASKETS AND LUBRICANTS
1. ELASTOMERIC GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477 FOR HIGH-HEAD APPLICATIONS.
2. GASKETS AND LUBRICANTS INTENDED FOR USE WITH POTABLE WATER SHALL BE CERTIFIED BY AN ACCREDITED TESTING AGENCY FOR COMPLIANCE WITH NSF/ANSI 61.

ANODE PROTECTION
1. MAGNESIUM ALLOY ANODES SHALL MEET ASTM B843 AND ASTM G97.
2. THERMITE WELDS ARE TO BE COATED WITH A PREFABRICATED ONE-PIECE PLASTIC CAP.
3. COPPER SLEEVES ARE REQUIRED FOR THERMITE WELD WIRE CONNECTIONS USING #10 AWG WIRE OR SMALLER.

WATER MAIN TRENCH
1. BEDDING, INITIAL, AND PREMIUM BACKFILL MATERIAL: # 57 OR #67 COARSE LIMESTONE AGGREGATE COMPLYING WITH ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 703.11; WRITTEN APPROVAL REQUIRED BY CWD FOR SAND BEDDING FOR DUCTILE IRON PIPE.
2. SUITABLE BACKFILL: EXCAVATED MATERIAL FREE OF ROCK LARGER THAN 1.5", FROZEN MATERIALS, ORGANIC MATERIAL, AND DEBRIS.
3. TYPE 2 CONTROLLED LOW-STRENGTH MORTAR (CLSM) SHALL CONFORM TO ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 613.03. CLSM MAY BE USED AS DIRECTED BY CLEVELAND WATER.

CASING
1. CASING SPACER: 8" WIDE STAINLESS STEEL WITH EPDM LINER AND REINFORCED PLASTIC RUNNERS
2. CASING PIPE: ASTM A1097 COATED OR UNCOATED STEEL WITH A MIN. 35,000 PSI SMYS.
3. FOR 8" WATER MAIN USE 16" CASING
4. FOR 12" WATER MAIN USE 20" CASING

TRACER WIRE
1. MUST BE INSTALLED WITH A CONTINUOUS RUN OF 12-GAUGE COPPER-CLAD STEEL WIRE.
2. BREAKING LOAD: MIN. 450 POUNDS
3. MIN. 30 MILS OF BLUE HDPE INSULATION CERTIFIED FOR DIRECT BURIAL
4. GROUND ROD: MIN 1.5 LB MAGNESIUM DRIVE-IN ANODE ROD WITH CONNECTED GROUND WIRE.
5. CONNECTORS: WATERPROOF, CONTAIN DIELECTRIC SILICONE AND RATED FOR DIRECT BURIAL.
6. NON-LOCKING FRICTION FIT, TWIST-ON, AND TAPED CONNECTIONS ARE NOT PERMITTED.

SERVICE CONNECTIONS
1. ALL SERVICE CONNECTIONS SHALL BE A MINIMUM OF 1"
2. FOR CONNECTIONS 2" AND SMALLER: USE TYPE K COPPER
3. FOR CONNECTIONS 3" AND LARGER: USE CLASS 52 DUCTILE IRON WRAPPED IN V-BIO® ENHANCED POLYETHYLENE ENCASEMENT.

BOLTS AND NUTS
1. ALL BOLTS AND NUTS ON ALL RETAINED MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE 1 COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF V-BIO® POLYETHYLENE WRAP OR APPROVED EQUAL WRAPPING IN ACCORDANCE WITH ANSI/AWWA C105/A21.5 MODIFIED METHOD "A" .

CONCRETE
1. FOR BULKHEAD: CLASS QC 1 OR 4,000 PSI HIGH STRENGTH BAGGED CONCRETE MIX
2. FOR THRUST BLOCK: CLASS QC 1 WITH 4,000 PSI 28 DAY COMPRESSIVE STRENGTH (ODOT 499)

FROST PROOFING
1. USE PRE-FORMED CELLULAR CONCRETE FOAM "GILSULATE 500 XR" AS MANUFACTURED BY GILSULATE INTERNATIONAL, INC. OR APPROVED EQUAL.

LOWERING
1. PIPE USED SHALL BE 8" (MIN.) AND 12" (MAX.) IN DIAMETER.
2. MAXIMUM BEND ALLOWED TO BE 22.5 DEGREES.

TEE
1. PIPE TO BE USED ON TEE: 8" (MIN.) AND 12" (MAX)
2. AWWA C110 OR C153 DI CLASS 350 MJ FITTINGS WITH FBE COATING, CEMENT LINING, POLYETHYLENE ENCASEMENT
3. AWWA C219 PIPE COUPLINGS- ROMAC 501 OR SMITH BLAIR 441 DI ONLY
4. AWWA C509 DUCTILE IRON RESILIENT WEDGE GATE VALVE (MJ X MJ)
5. MECHANICAL JOINT RETAINER GLAND FOR PVC PIPE-TYLER UNION OR APPROVED EQUAL

	REVISIONS			
CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	NO.	DATE	BY	MATERIAL CRITERIA FOR WATER MAIN INSTALLATION AND REPLACEMENT
				DETAIL NO.: GEN-000A
				SCALE: N.T.S. / DATE: 7/12/2024

DEVELOPERS, ENGINEERS, AND CONTRACTORS ARE TO ABIDE BY THE MOST CURRENT VERSION OF THE CLEVELAND WATER NOTES AND DETAILS. THE MOST UP-TO-DATE VERSION CAN BE FOUND AT WWW.CLEVELANDWATER.COM/CONSTRUCTION/ OR AS PROVIDED BY CLEVELAND WATER *STAFF.*

REFERENCE STANDARDS

1. AWWA C600 - INSTALLATION OF DUCTILE-IRON MAINS AND THEIR APPURTENANCES
1. AWWA C605- UNDERGROUND INSTALLATION OF POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FITTINGS
2. AWWA C651- DISINFECTING WATER MAINS
3. ASTM D2774- STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING
4. ASTM F1668- STANDARD GUIDE FOR CONSTRUCTION PROCEDURES FOR BURIED PLASTIC PIPE

OVERALL PIPE PREPARATION AND EXECUTION

1. ALL DUCTILE IRON PIPE SHALL BE INSTALLED PER THE MOST CURRENT REVISION OF AWWA C600, AWWA MANUAL M41, DIPRA'S "INSTALLATION GUIDE FOR DUCTILE IRON PIPE" (ISBN 0-9642194-0-9) AND "DIRECT TAPPING OF DUCTILE IRON PIPING ENCASED IN POLYETHYLENE", AS WELL AS THE MANUFACTURER'S INSTRUCTIONS.
2. ALL DUCTILE IRON BURIED WATER MAINS, FITTINGS, VALVES, FIRE HYDRANT BRANCH PIPING AND APPURTENANCES SHALL BE ENCASED WITH V-BIO® ENHANCED POLYETHYLENE ENCASEMENT INSTALLED IN ACCORDANCE WITH THE MOST CURRENT REVISION OF ANSI/AWWA C-105/A21.5 MODIFIED METHOD "A" AND ASTM A674.
3. PIPE AND ACCESSORIES SHOULD BE INSPECTED FOR DEFECTS AND CLEANLINESS BEFORE THEY ARE LOWERED INTO THE TRENCH. ANY DEFECTIVE OR DAMAGED MATERIAL SHOULD BE REPAIRED OR REPLACED, AND ALL FOREIGN MATTER OR DIRT REMOVED FROM THE INTERIOR OF THE PIPE AND ACCESSORIES BEFORE LOWERING INTO TRENCH.
4. ALL PVC PIPE SHALL BE INSTALLED PER AWWA, C605, ASTM D2774, ASTM F1668, AND MANUFACTURER'S INSTRUCTIONS.
5. ONCE DELIVERED, ALL PVC PIPE MUST BE PROTECTED FROM DIRECT SUN EXPOSURE UNTIL THE PIPE IS INSTALLED AND BACKFILLED.
6. ANY PIPE JOINT THAT HAS BEEN OVER-INSERTED SHALL HAVE BOTH THE BELL PIPE AND THE SPIGOT PIPE REMOVED AND DISCARDED.
7. IN NO CASE SHALL MAINS BE LAID WITH LESS THAN 3'-6" OF COVER IN UNPAVED AREAS AND 3'-0" TO BOTTOM OF SLAB IN PAVED AREAS. MAINS SHALL BE LAID AT A BURY DEPTH OF 6 FT MIN. UNLESS WRITTEN PERMISSION IS PROVIDED BY CLEVELAND WATER.
8. ALL MATERIALS, INCLUDING BUT NOT LIMITED TO WATER MAINS, FIRE HYDRANTS, VALVES, CONNECTION MATERIALS AND OTHER WATER APPURTENANCES, SHALL BE NEW AND UNUSED AND SHALL CONFORM TO THE MOST CURRENT CLEVELAND WATER SPECIFICATIONS. ALL MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH CLEVELAND DIVISION OF WATER STANDARDS.
9. TWO FEET ABOVE THE MAIN, DETECTABLE TRACER TAPE NOTING THE PRESENCE OF A WATER MAIN SHALL BE INSTALLED FOR THE ENTIRE LENGTH OF THE MAIN, INCLUDING HYDRANT LATERALS AND OPEN CUT INSTALLED SERVICE CONNECTIONS.
10. ALL MATERIALS USED SHALL ABIDE BY REQUIREMENTS LISTED ON MATERIAL SPECIFICATION LIST (GEN-000A).

TRACER WIRE FOR PVC PIPE

1. ALL NEW TRACER WIRE INSTALLATIONS SHALL HAVE THEIR FUNCTION VERIFIED BY BEING LOCATED USING TYPICAL LOW FREQUENCY (512HZ) LINE TRACING EQUIPMENT. THE LOCATING FIRM SHALL PROVIDE WRITTEN CERTIFICATIONS THAT THE SYSTEM IS COMPLETELY FUNCTIONAL AT TEST COMPLETION.
2. MAGNESIUM GROUND ANODE RODS ARE TO BE INSTALLED AT EACH DEAD END PER THE MANUFACTURER'S INSTRUCTIONS.
3. TRACER LINES SHALL TERMINATE AT A DEDICATED AT-GRADE ACCESS POINT/TEST STATION IDENTIFIED WITH "WATER" ON THE CAP. AT LEAST 2 FEET OF SLACK WIRE SHALL BE PROVIDED AT EACH TERMINATION POINT.
4. LATERAL TRACER LINES ON HYDRANTS, TEES, AND CROSSES ARE NOT TO CUT THE MAIN TRACER WIRE.

HYDROSTATIC PRESSURE TESTING

1. CLEAN PIPE PRIOR TO CONDUCTING HYDROSTATIC PRESSURE TESTING. CLEANING MAY BE COMPLETED VIA FLUSHING OR SWABBING EXCEPT IF DISINFECTION IS CONDUCTED USING THE TABLET METHOD.
2. FILL WATER MAIN AT A CONTINUOUS RATE, 1 FT/SEC MAXIMUM. ONCE FULL, FLUSH THE LINE NOT LESS THAN 3 FT/SEC UNLESS DIRECTED BY CLEVELAND WATER THAT CONDITIONS DO NOT PERMIT THE REQUIRED FLOW RATE TO BE ACHIEVED. FLUSHING SHALL CONTINUE UNTIL THE VOLUME OF WATER IN THE NEWLY INSTALLED MAIN HAS TURNED OVER AT LEAST ONE TIME.
3. THE HYDROSTATIC TEST PRESSURE SHALL BE 75 PSI ABOVE THE STATIC PRESSURE PREVAILING AT THE SITE, BUT IN NO CASE LESS THAN 150 PSI.
4. DURATION: 2 HOURS (WITH PRESSURE MAINTAINED WITHIN 5 PSI OF THE REQUIRED TEST PRESSURE).
5. SHOULD THE PRESSURE TEST FAIL, THE CONTRACTOR SHALL IDENTIFY THE SOURCE(S) AND CORRECT THE DEFICIENCY. THE HYDROSTATIC PRESSURE TEST SHALL BE REPEATED FOR THE PRESCRIBED DURATION TO VERIFY THAT THE NEW WATER MAIN MEETS THE TEST CRITERIA. WORK PERFORMED TO IDENTIFY AND CORRECT FAILURE SOURCE(S) AND THEIR REMEDIATION MUST BE COMPLETED TO THE SATISFACTION OF CLEVELAND WATER AT NO ADDITIONAL COST.

DISINFECTION

1. DISINFECTION FOR WATER MAINS SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN THE MOST CURRENT REVISION OF AWWA C651.

SERVICE CONNECTIONS

1. SADDLE TAPPING SHALL BE PERFORMED FOR PIPES OF ANY NOMINAL SIZE AND PRESSURE CLASS. TAP SIZE IS LIMITED TO 2-INCHES MAXIMUM.
2. TAPPING SLEEVE AND VALVE IS REQUIRED FOR SERVICE CONNECTIONS LARGER THAN 2-INCHES. THRUST RESTRAINT IS REQUIRED.
3. SERVICE CLAMPS OF SADDLES SHALL PROVIDE FULL SUPPORT AROUND THE CIRCUMFERENCE OF THE PIPE AND PROVIDE A BEARING AREA OF SUFFICIENT WIDTH ALONG THE AXIS OF THE PIPE TO PREVENT DISTORTION WHEN THE SADDLE IS TIGHTENED. NARROW U-BOLT-TYPE STRAPS AND SADDLES HAVING LUGS ARE PROHIBITED.

PIPE JOINTS

1. PIPE JOINTS SHALL ADHERE TO ANSI/AWWA C110/A21.10, C111/A21.11, C153/A21.53, C900, C905, C907 AND C909 REQUIREMENTS AND PROCEDURES FOR JOINT METHODS AND MATERIALS.
4. RESTRAINED JOINTS, AS INDICATED ON THE PLANS, SHALL COMPLY WITH ANSI/AWWA C111/A21.11.

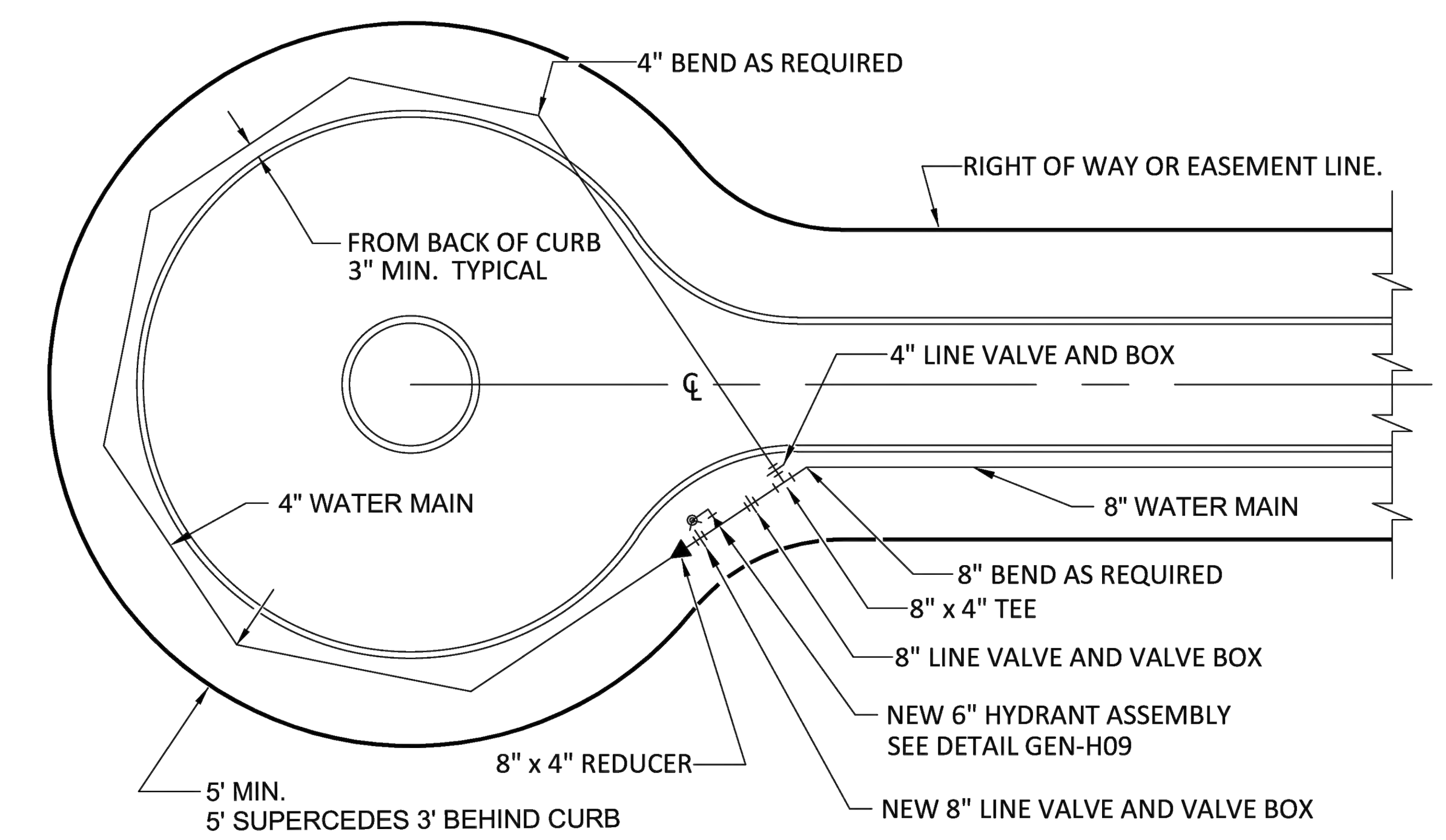
FITTINGS AND APPURTENANCES

1. ALL FITTINGS SHALL BE APPROVED DUCTILE IRON CLASS 350, CEMENT LINED AND FUSION BOND EPOXY COATED CONFORMING TO THE REQUIREMENTS OF ANSI/AWWA C110/A21.10 OR ANSI/AWWA C153/A21.53.
2. ALL FITTINGS AND PIPES CONNECTED TO FITTINGS SHALL BE RESTRAINED USING A "RETAINED" MECHANICAL JOINT. JOINTS SHALL COMPLY WITH ANSI/AWWA C111/A21.11.
3. ALL FITTINGS MUST HAVE BELL ENDS UNLESS APPROVED BY CLEVELAND WATER.
4. PROVIDE PROPER SUPPORT FOR VALVES, HYDRANTS, AND FITTINGS SUCH THAT THE WEIGHT IS NOT APPLIED TO THE PIPE.

FIELD QUALITY CONTROL

1. PIPE SPIGOT END, BELL END, COUPLER OR FITTING, AND ELASTOMERIC GASKET SHALL BE CLEANED IMMEDIATELY BEFORE ASSEMBLY. DO NOT REMOVE FACTORY INSTALLED GASKETS. APPROVED LUBRICANTS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2. PIPE CUTTING SHALL BE CONDUCTED IN ACCORDANCE WITH AWWA C600, C900, AND MANUFACTURER REQUIREMENTS. PIPE SHALL BE MARKED AROUND ITS ENTIRE CIRCUMFERENCE TO ENSURE A SQUARE CUT.
3. CUT ENDS OF PIPE SHALL BE BEVELED TO ENSURE PROPER JOINT ASSEMBLY. USE FACTORY-FINISHED PIPE END AS A GUIDE TO DETERMINE THE ANGLE AND LENGTH OF THE BEVEL. DEBURR AND CLEAN CUT PIPE END PRIOR TO BELL INSERTION.
4. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL PLUG ALL OPEN PIPE ENDS WITH WATERTIGHT PLUGS AS PER THE "PREVENTATIVE AND CORRECTIVE MEASURES DURING CONSTRUCTION" SECTION OF THE MOST CURRENT REVISION OF AWWA C-651 AS TO PREVENT THE INFILTRATION OR INTRUSION OF ANY FOREIGN OBJECTS OR MATERIALS. DATE STAMPED DIGITAL PHOTOS SHALL BE PROVIDED FOR EACH WORKDAY DEMONSTRATING THAT PROPER AWWA C-651 METHODS WERE USED TO PLUG ALL OPEN WATER MAIN ENDS. EACH PHOTO SHALL CLEARLY IDENTIFY THE STATION AT WHICH THE PIPE IS PLUGGED BY USE OF A STATION MARKER PLACED AT THE PLUGGED PIPE END. PHOTOS SHALL BE SUBMITTED ON A DAILY BASIS UNLESS OTHERWISE DEFINED BY THE CLEVELAND WATER INSPECTOR OR ENGINEER. ALL PHOTOS TAKEN OVER THE COURSE OF THE PROJECT SHALL BE SUBMITTED BY THE CONTRACTOR AS PART OF THE AS-BUILT SUBMITTAL. PHOTOS ARE TO INCLUDE STATIONING MARKERS. AS-BUILTS SHALL BE DEEMED INCOMPLETE WITHOUT SAID COLLECTION OF DIGITAL PHOTOS.
5. CLEVELAND WATER INSPECTORS SHALL BE INVITED TO WITNESS TRACER WIRE VERIFICATION FOR PVC PIPE INSTALLATIONS. THIS VERIFICATION SHALL BE PERFORMED UPON COMPLETION OF ROUGH GRADING AND AGAIN PRIOR TO THE FINAL ACCEPTANCE OF THE PROJECT. CONTINUITY TESTING IN LIEU OF ACTUAL LINE TRACING SHALL NOT BE ACCEPTED. CLEVELAND WATER WILL REQUIRE COMPLETION OF THE FIRST VERIFICATION PRIOR TO CHLORINATION, WITH CERTIFICATION SUBMITTED ALONG WITH RED LINE DRAWINGS. CERTIFICATION OF THE SECOND VERIFICATION SHALL BE PROVIDED WITH AS-BUILT DRAWINGS.

	REVISIONS			
CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	NO.	DATE	BY	GUIDELINES FOR WATER MAIN INSTALLATION AND REPLACEMENT
				DETAIL NO.: GEN-000B
				SCALE: N.T.S. / DATE: 5/31/2024



NOTE:

1. INSTALL HYDRANT ASSEMBLY AS CLOSE TO 8" X 4" TEE AS POSSIBLE (MAX. 18 FT). USE ALTERNATE CUL-DE-SACE SCHEMATIC WHEN 18 FT IS EXCEEDED.
2. INSTALL THRUST BLOCKS BEHIND ALL TEES AND BENDS.
3. INSTALL RESTRAINED JOINT PIPE AND FITTINGS.

REVISIONS				
NO.	DATE	BY	CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	STANDARD CUL - DE - SAC HYDRANT/LOOP SCHEMATIC
				DETAIL NO.: GEN-013
				SCALE: N.T.S. / DATE: 1/26/2024

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

WATER MAIN DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

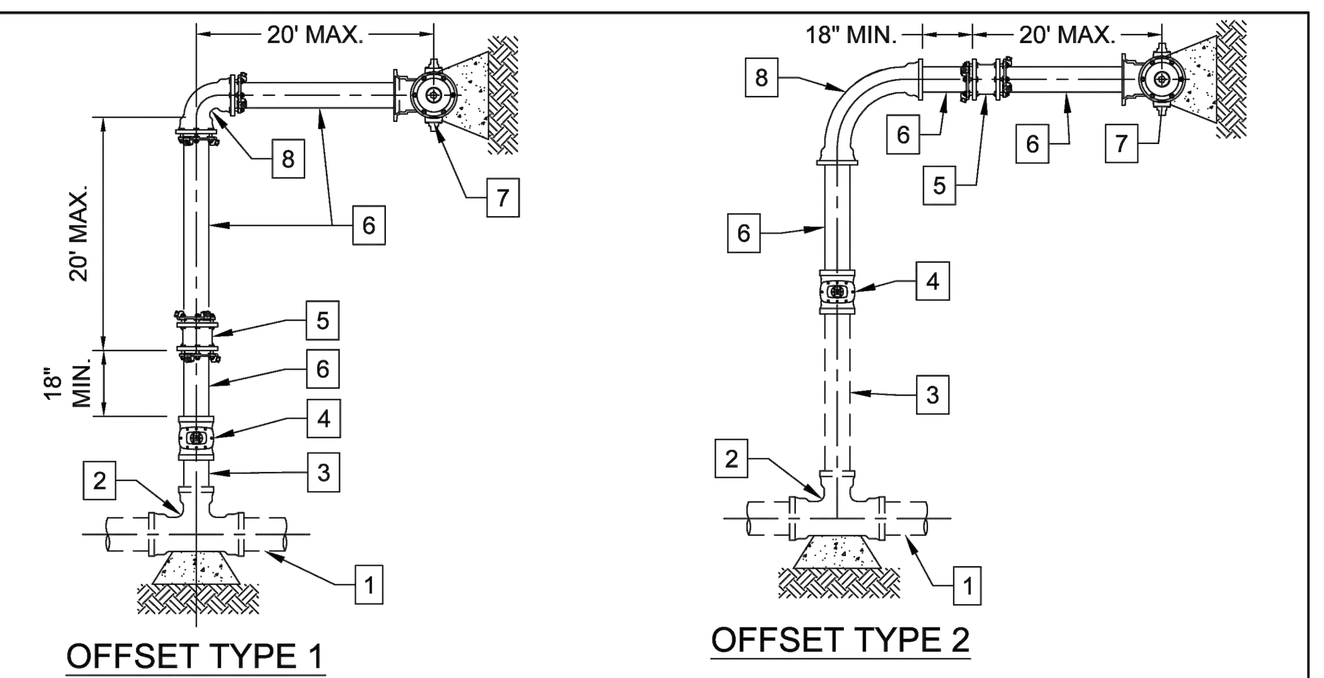
REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

SHEET NO.
C7.1

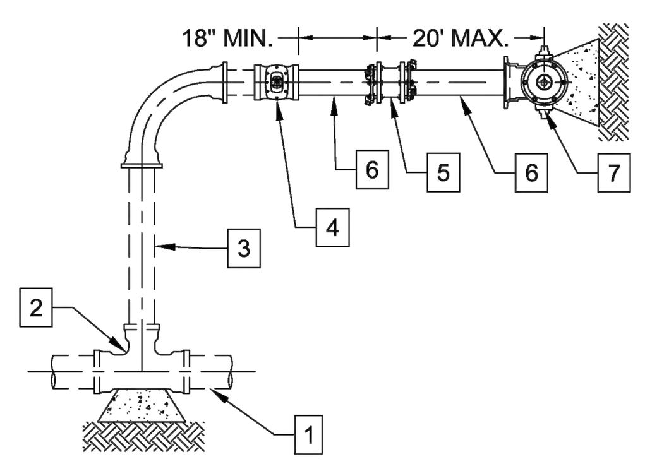
THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION
WATER MAIN DETAILS
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

EXTEND, SHORTEN & ADJUST 6" HYDRANT TO GRADE



OFFSET TYPE 1

OFFSET TYPE 2



OFFSET TYPE 3

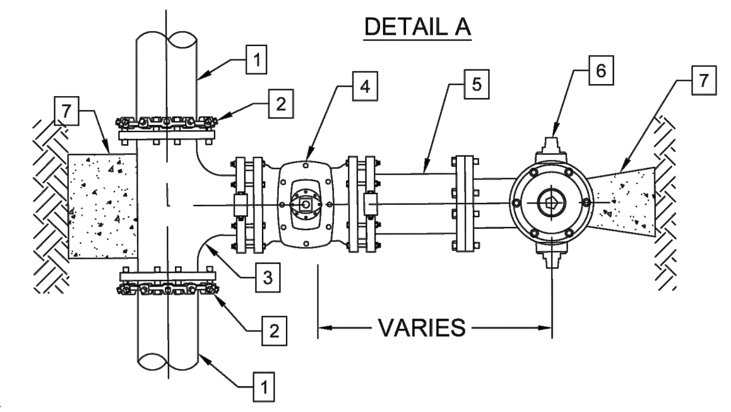
HYDRANT EXTENSION KEYED NOTES	
1	EXISTING WATER MAIN
2	EXISTING SIZE OF MAIN X 6" TEE
3	EXISTING HYDRANT BRANCH
4	REPLACE EXISTING VALVE WITH NEW 6" VALVE
5	NEW 6" SOLID SLEEVE OR COMPRESSION COUPLING
6	NEW 6" PIPE
7	EXISTING HYDRANT
8	NEW 6" 90° BEND

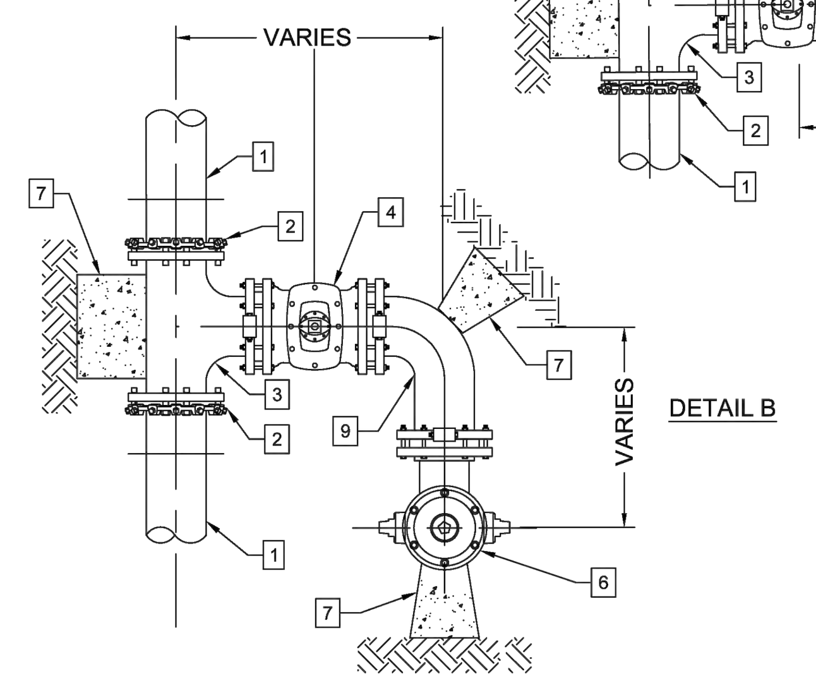
NOTES:

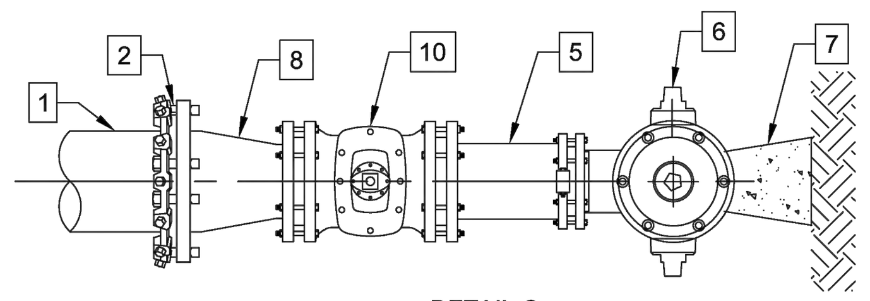
1. ADJUST HYDRANT TO GRADE TO MEET FIELD CONDITIONS. TURN 4" STEAMER NOZZLE TOWARD PAVEMENT.
2. REPLACE ALL EXISTING 4" TEE AND HYDRANT ASSEMBLIES WITH 6" TEE AND HYDRANT ASSEMBLIES.
3. REPLACE EXISTING TEE IF JOINTS ARE LEADED. SEE DETAIL GEN-T01.

REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	EXTEND, SHORTEN & ADJUST 6" HYDRANT TO GRADE	
NO.	DATE	BY		DETAIL NO.:	GEN-H03
				SCALE: N.T.S.	DATE: 1/15/2024

TYPICAL NEW HYDRANT INSTALLATION DETAILS







DETAIL C

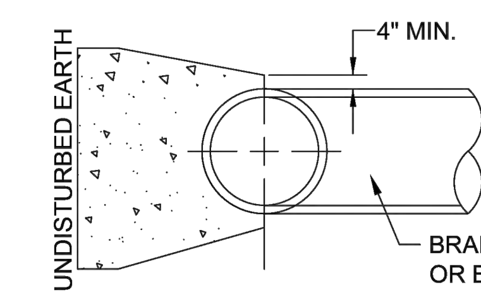
MATERIAL LIST	
1	NEW WATER MAIN
2	RESTRAINED MJ JOINT
3	RESTRAINED MJ SWIVEL TEE
4	6" GATE VALVE RESTRAINED TO SWIVEL TEE
5	6" ANCHOR COUPLING
6	NEW HYDRANT
7	CONCRETE THRUST BLOCKING TO UNDISTURBED EARTH (SEE CWD DETAIL GEN-006)
8	SIZE OF MAIN X 6" REDUCER
9	SWIVEL X SWIVEL 90 DEG. BEND
10	6" GATE VALVE RESTRAINED TO REDUCER

NOTES:

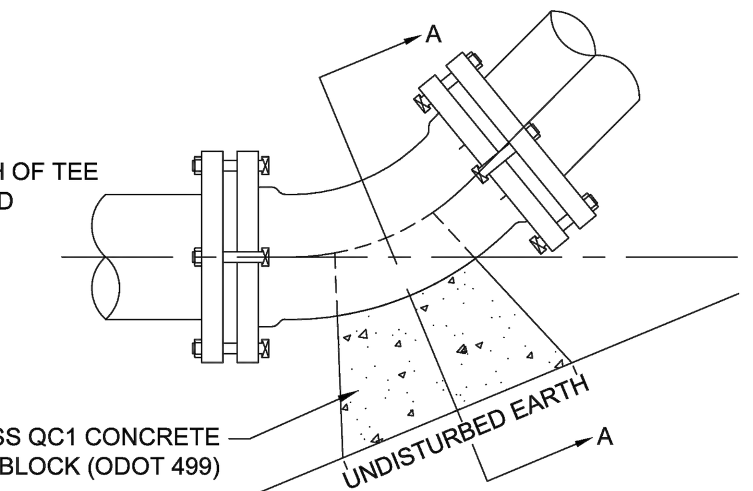
1. INSTALL RESTRAINED JOINTS ON ALL PIPE AND FITTINGS.
2. ADJUST NEW HYDRANT TO MEET FIELD CONDITIONS. TURN STEAMER NOZZLE TOWARD PAVEMENT.
3. INSTALL NEW 8" PIPE WITH 36 LF (MIN.) FULLY RESTRAINED JOINTS OR NEW 12" PIPE WITH 54 LF (MIN.) RESTRAINED JOINTS.

REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	TYPICAL NEW HYDRANT INSTALLATION DETAILS	
NO.	DATE	BY		DETAIL NO.:	GEN-H09
				SCALE: N.T.S.	DATE: 5/31/2024

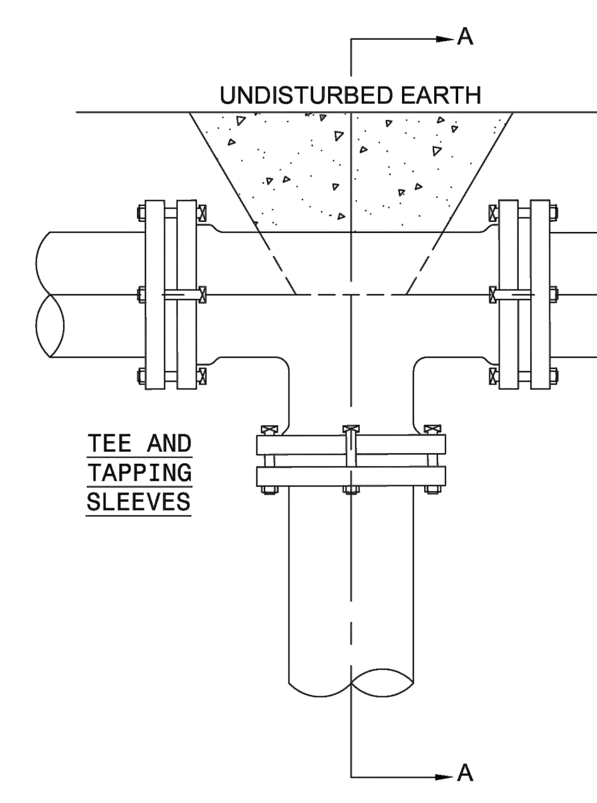
CONCRETE THRUST BLOCKS FOR TEES AND HORIZONTAL BENDS



SECTION A - A



PLAN (BENDS)



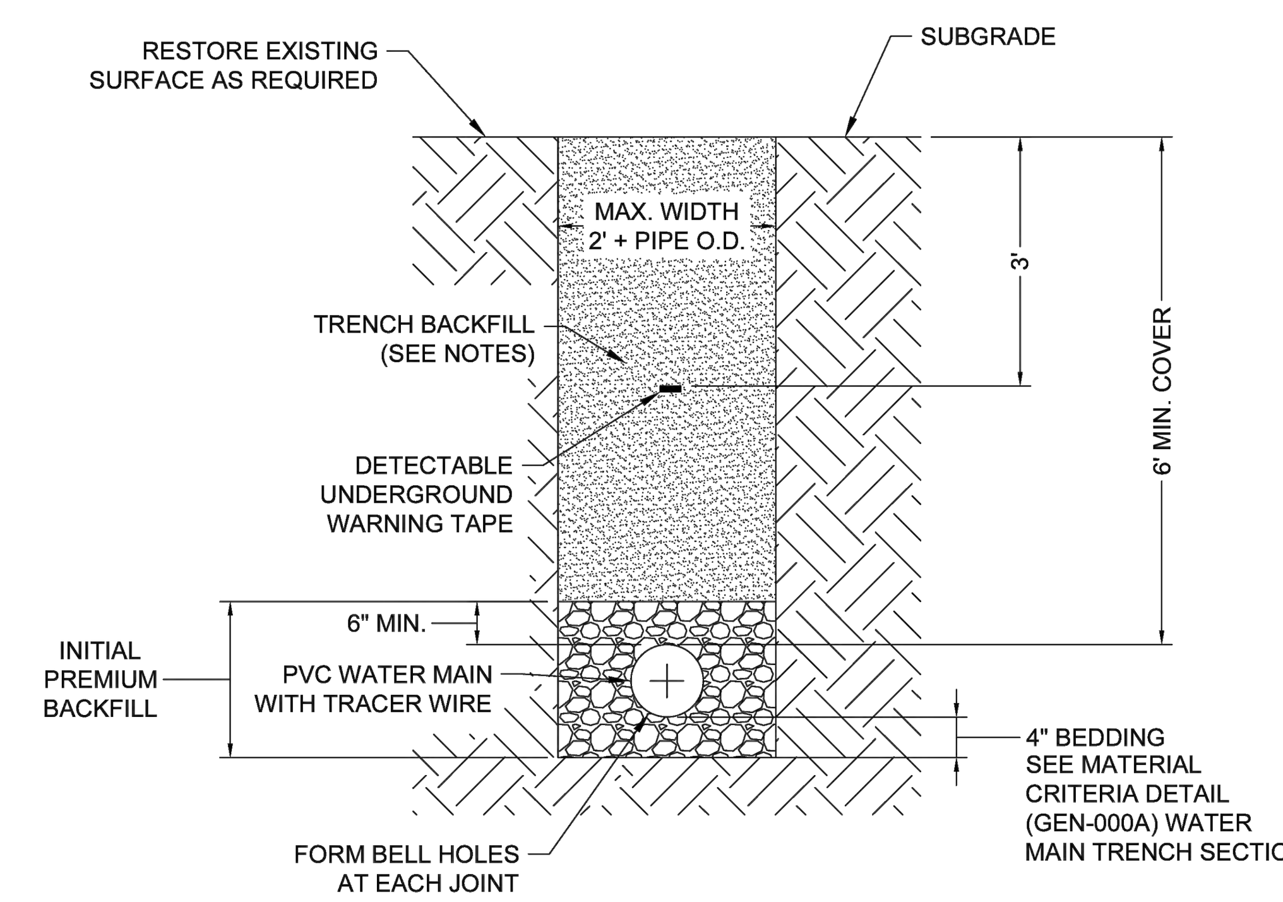
PLAN (TEES)

NOTES:

1. DETERMINE SIZE OF THE THRUST BLOCK AS SPECIFIED IN THE CWD DESIGN MANUAL.
2. THRUST BLOCKS ARE NOT REQUIRED WHEN RESTRAINED JOINT FITTINGS ARE INSTALLED.
3. PLACE THRUST BLOCKS AGAINST UNDISTURBED EARTH.
4. USE FORMS WHEN PLACING CONCRETE.
5. DO NOT COVER BOLTS WITH CONCRETE.

REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	CONCRETE THRUST BLOCKS FOR TEES AND HORIZONTAL BENDS	
NO.	DATE	BY		DETAIL NO.:	GEN-006
				SCALE: N.T.S.	DATE: 5/31/2024

WATER MAIN TRENCH DETAILS



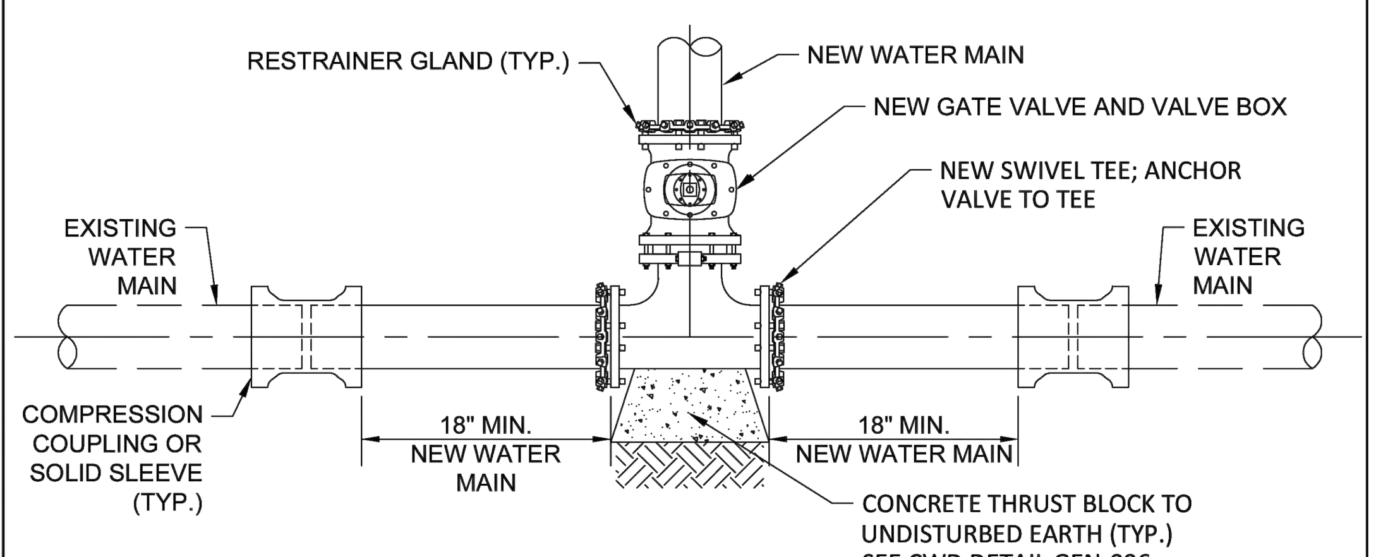
IN EARTH

NOTES:

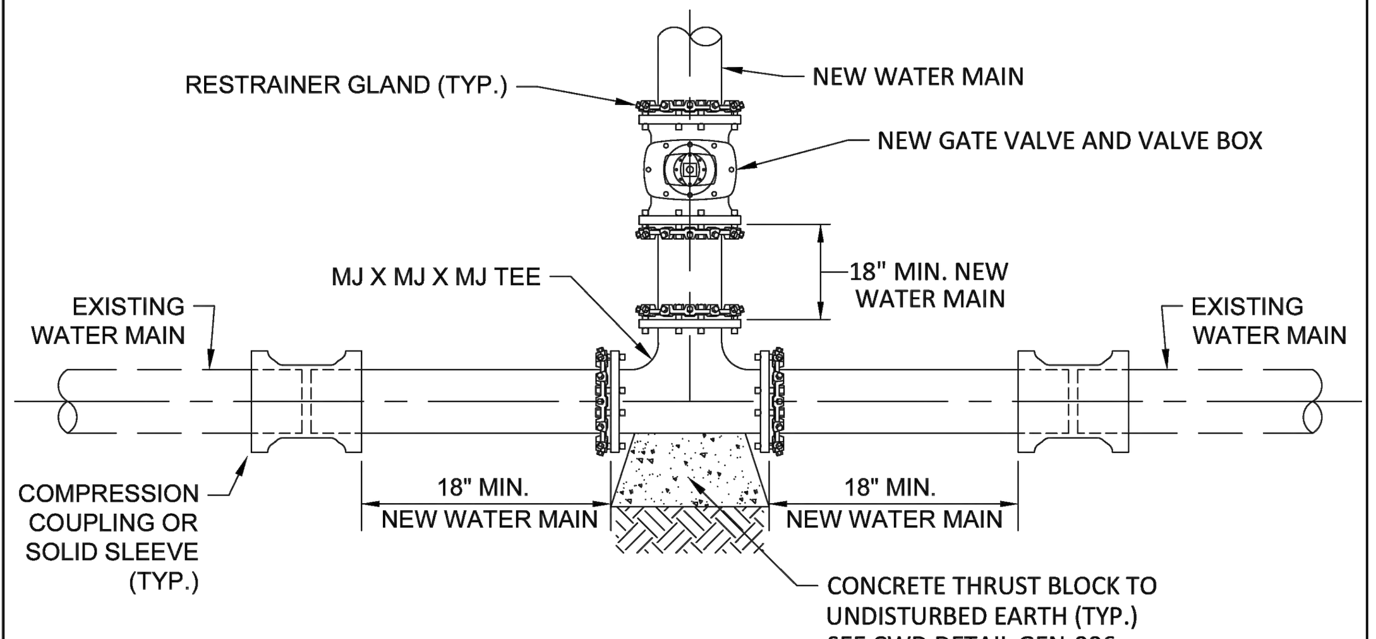
1. PLACE AND COMPACT INITIAL PREMIUM BACKFILL USING HAND-HELD OR WALK BEHIND EQUIPMENT. DO NOT ALLOW BACKFILL MATERIAL TO FREE-FALL INTO TRENCH.
2. UNDER EXISTING AND FUTURE PAVEMENT, SIDEWALKS, AND DRIVEWAYS WITHIN THE CITY OF CLEVELAND CORPORATION LIMITS, PLACE AND COMPACT CONTROLLED LOW STRENGTH MORTAR - CONTROLLED DENSITY FILL (CLSM-CDF) TRENCH BACKFILL TO PAVEMENT SUBGRADE. PLACE CLSM-CDF IN OTHER MUNICIPALITIES WHERE PERMITTED OR DIRECTED.
3. UNDER EXISTING AND FUTURE PAVEMENT, SIDEWALKS, AND DRIVEWAYS IN OTHER MUNICIPALITIES WHERE PERMITTED, PLACE AND COMPACT PREMIUM TRENCH BACKFILL MATERIAL IN MAXIMUM 6" LIFTS TO 95% OF STANDARD PROCTOR AT +/2% OF OPTIMUM MOISTURE CONTENT TO PAVEMENT SUBGRADE. IF NOT PERMITTED, FOLLOW LOCAL REQUIREMENTS.
4. IN LAWNS AND STREETSCAPE AREAS, PLACE AND COMPACT SUITABLE TRENCH BACKFILL MATERIAL IN MAXIMUM 6" LIFTS TO 85% OF STANDARD PROCTOR AT +/-3% OF OPTIMUM MOISTURE CONTENT TO FINAL RESTORATION SUBGRADE.

REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	WATER MAIN TRENCH DETAILS	
NO.	DATE	BY		DETAIL NO.:	PVC-001
				SCALE: N.T.S.	DATE: 7/9/2024

CUT-IN TEE DETAILS



METHOD NO. 1



METHOD NO. 2

NOTES:

1. USE METHOD NO. 1 UNLESS DIRECTED BY CWD.
2. THRUST BLOCKS NOT REQUIRED IF BOLTLESS RESTRAINED JOINTS ARE USED.

REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	CUT-IN TEE DETAILS	
NO.	DATE	BY		DETAIL NO.:	GEN-T01
				SCALE: N.T.S.	DATE: 1/15/2024

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

NEFF & ASSOCIATES
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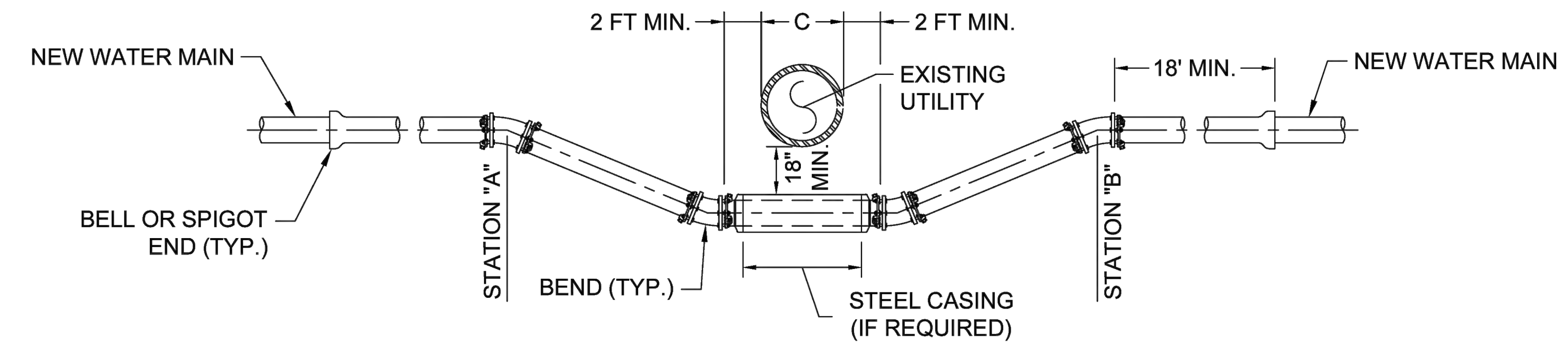
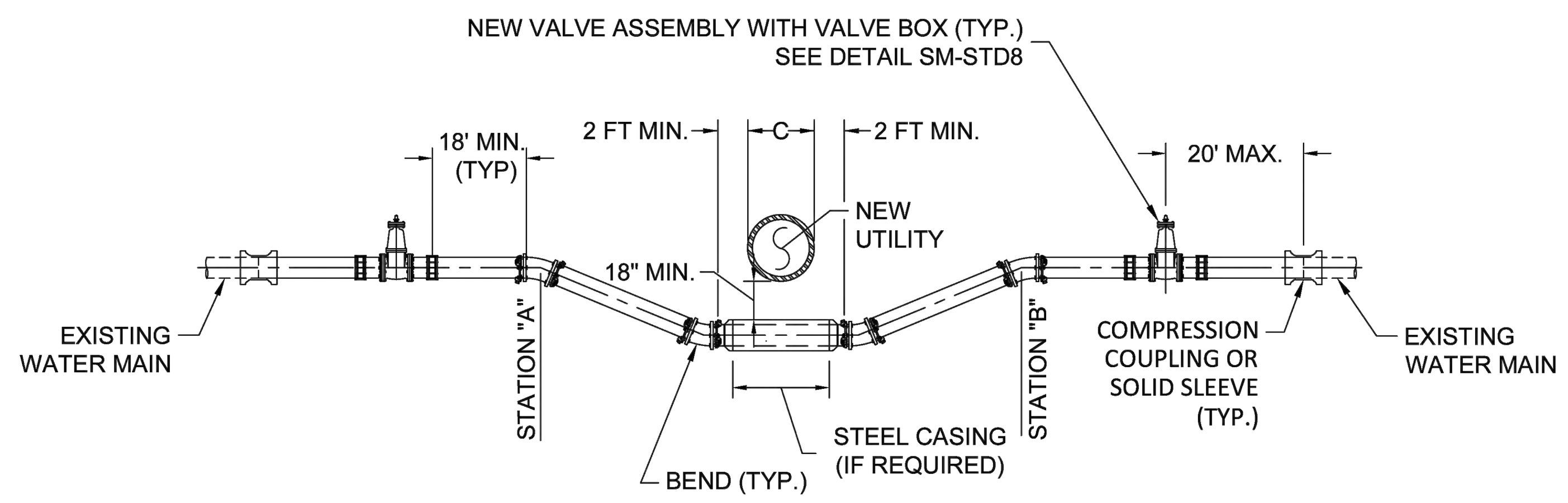
SHEET NO.
C7.2



INSTALL NEW WATER MAIN UNDER EXISTING UTILITY



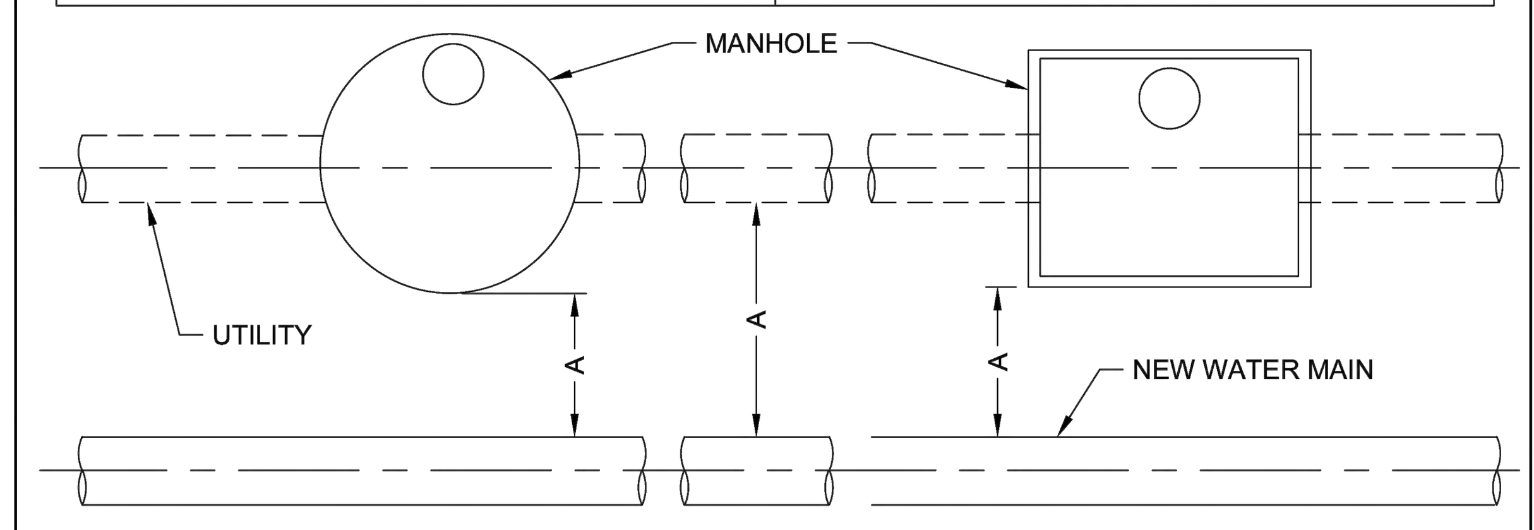
LOWER EXISTING WATER MAIN UNDER NEW UTILITY

NOTES:

1. MAX. BEND ANGLE IS 22.5 DEGREES.
2. NO JOINTS ARE PERMITTED WITHIN 18 FT OF UPPER VERTICAL BENDS.
3. DO NOT INSTALL NEW WATER SERVICE LINES BETWEEN STATIONS "A" AND "B".
4. PROVIDE TEMPORARY WATER SERVICE TO EXISTING CUSTOMERS THROUGHOUT CONSTRUCTION.
5. STEEL CASING IS REQUIRED IF "C" IS 24" OR LARGER.

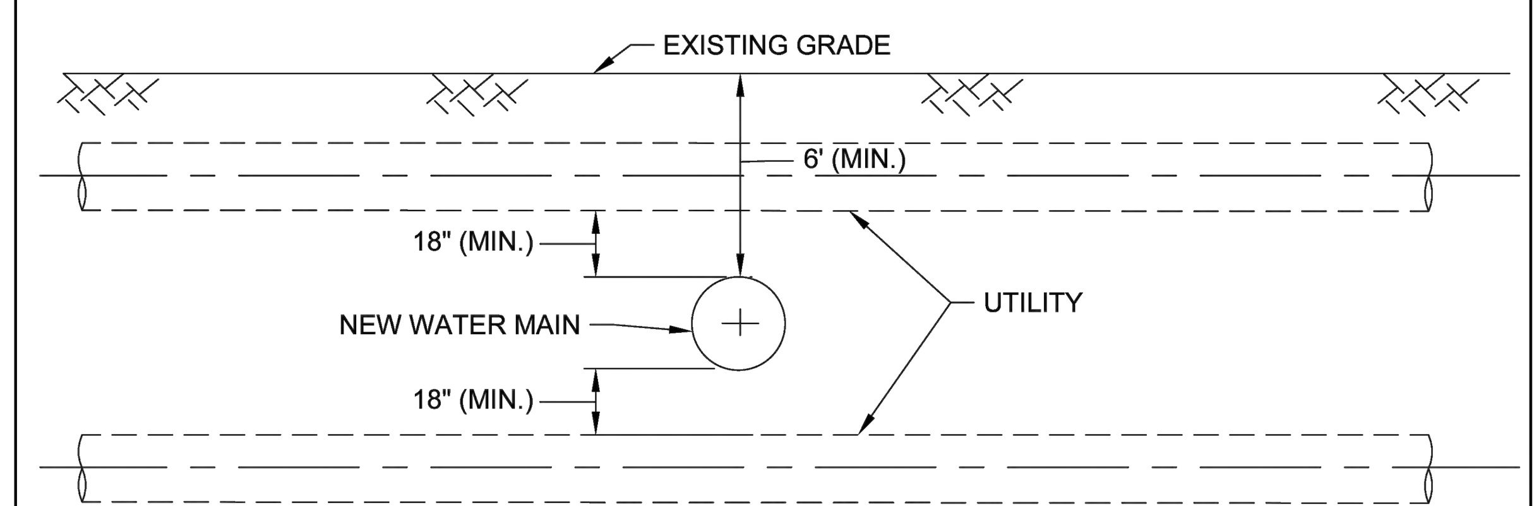
REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	WATER MAINS UNDER UTILITIES
NO.	DATE	BY		DETAIL NO.: GEN-L02
				SCALE: N.T.S. DATE: 5/31/2024

HORIZONTAL CLEARANCE (A)	
STORM, SANITARY AND COMBINED SEWERS	GAS, DUCTBANK, OTHER UTILITY
10 FT (MIN.)	5 FT (MIN.) *



* UNLESS OTHERWISE AUTHORIZED BY CWD

PLAN VIEW

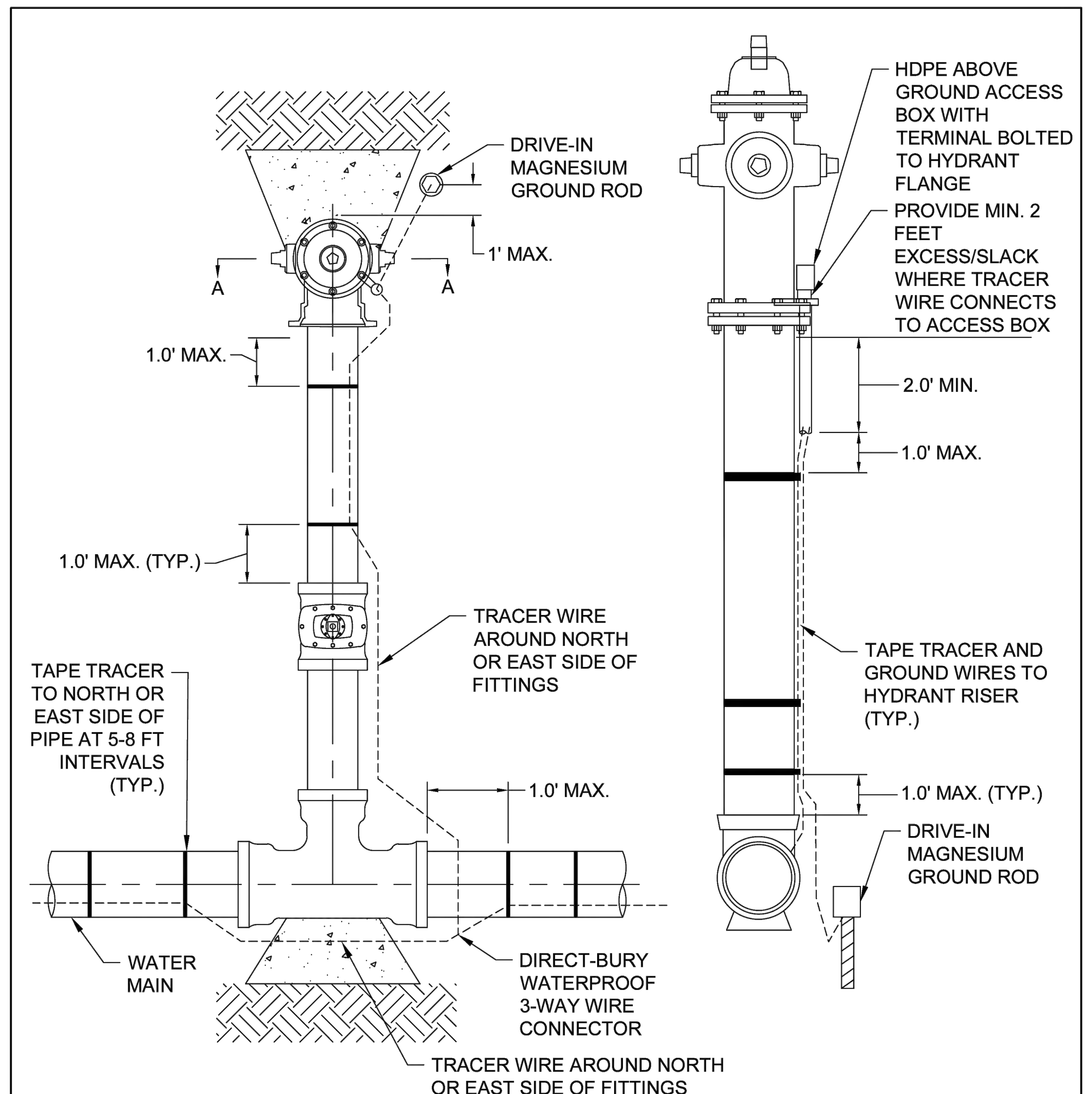


PROFILE VIEW

NOTES:

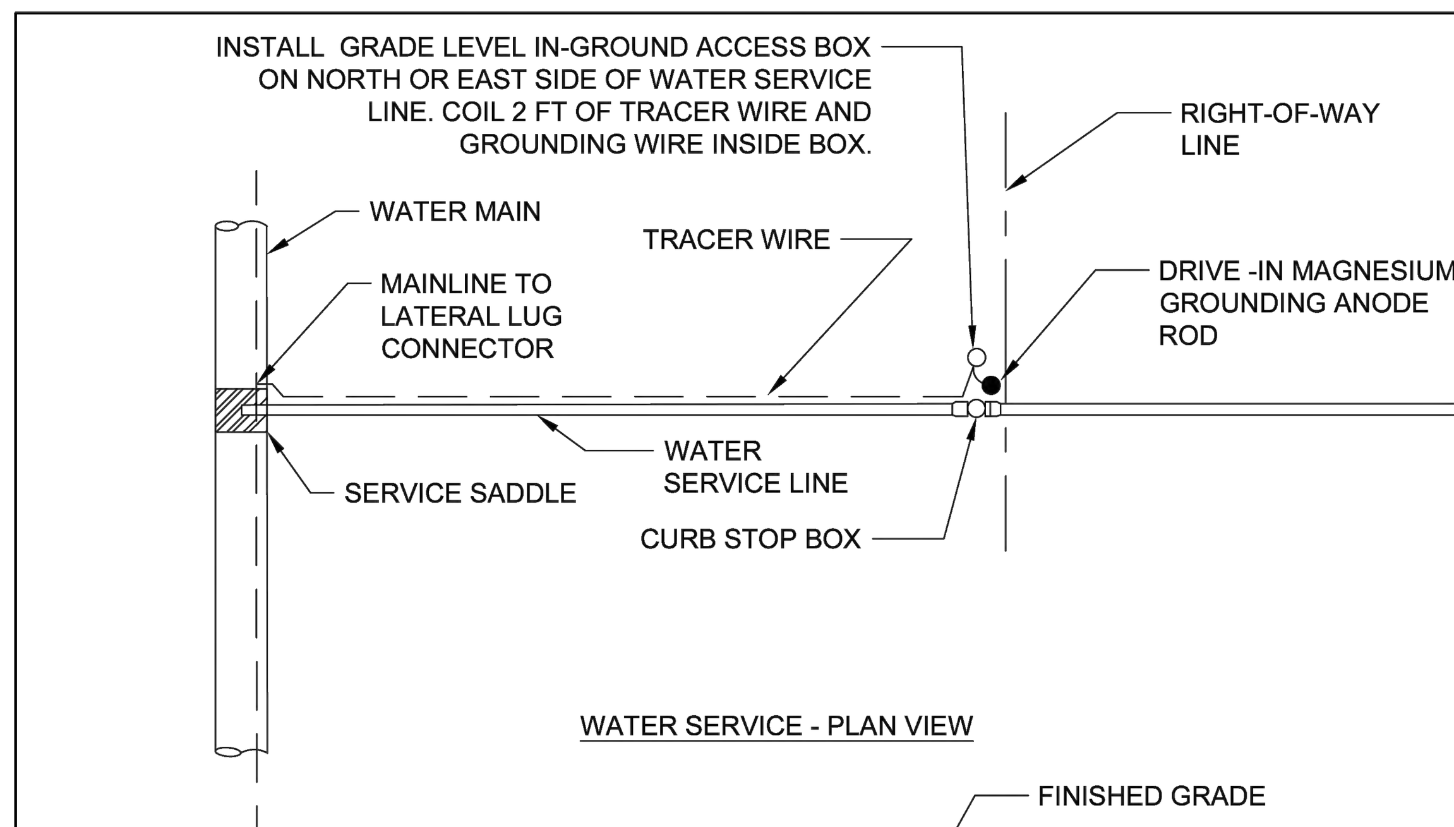
1. ADJUST HORIZONTAL OR VERTICAL ALIGNMENT AS NEEDED TO ACHIEVE REQUIRED SEPARATION. SEE DETAILS GEN-L01 AND GEN-L02 FOR VERTICAL BEND RESTRAINT AND LOWERING REQUIREMENTS.
2. IF EXISTING SEPARATION IS LESS THAN REQUIRED, SEPARATION MUST BE IMPROVED OR MAINTAINED.
3. SEE SECTION 8.8 OF THE MOST CURRENT VERSION OF '10 STATES STANDARDS - RECOMMENDED STANDARDS FOR WATER WORKS' FOR SEPARATION FROM SEWERS AND SOURCES OF CONTAMINATION.

REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	HORIZONTAL AND VERTICAL CLEARANCE FOR UTILITIES
NO.	DATE	BY		DETAIL NO.: GEN-017
				SCALE: N.T.S. DATE: 5/31/2024

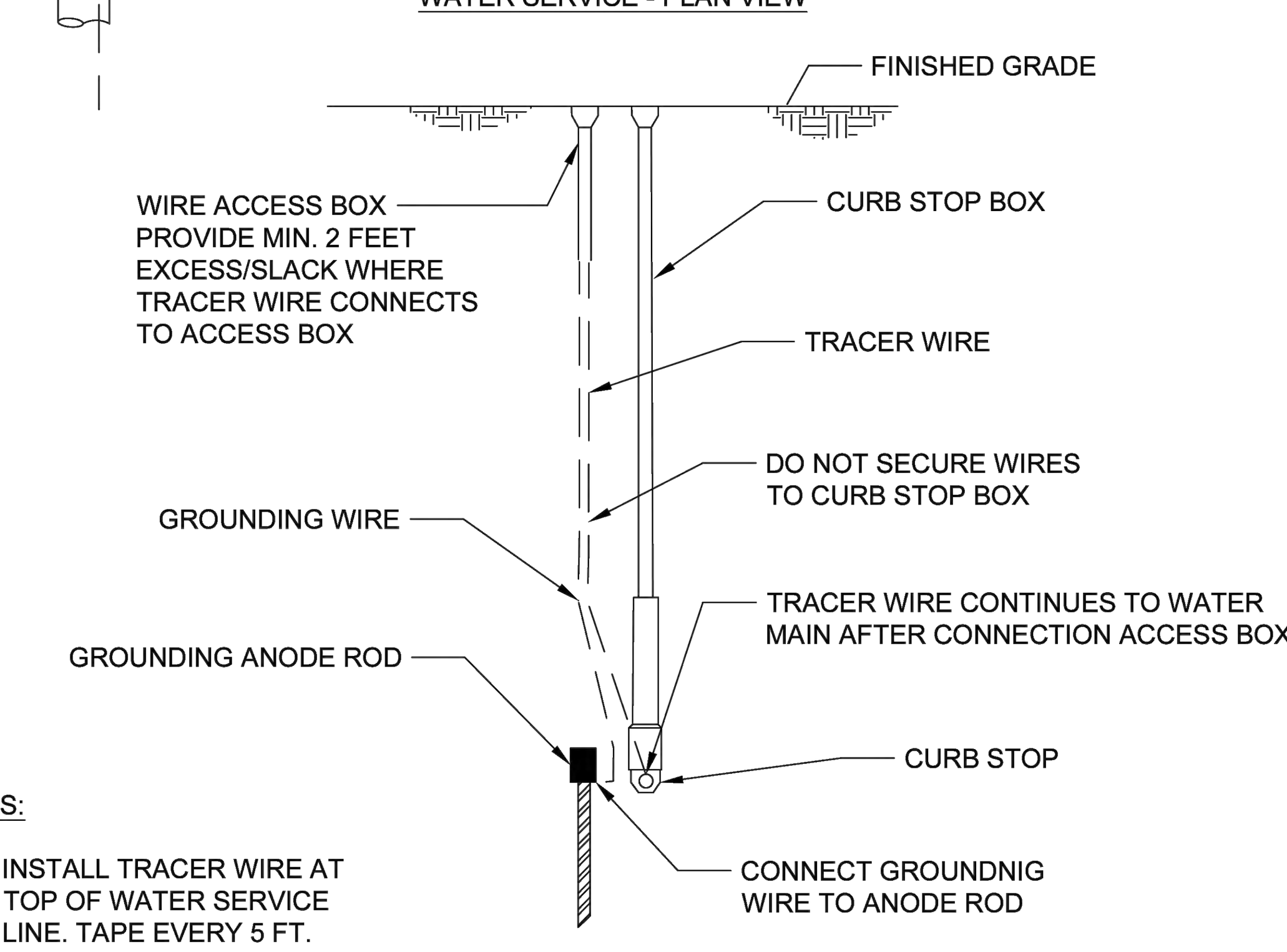


HYDRANT - PLAN   SECTION A-A

REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	TRACER WIRE AT HYDRANT
NO.	DATE	BY		DETAIL NO.: PVC-TW01
				SCALE: N.T.S. DATE: 1/15/2024



WATER SERVICE - PLAN VIEW



NOTES:

1. INSTALL TRACER WIRE AT TOP OF WATER SERVICE LINE. TAPE EVERY 5 FT.

WATER SERVICE - SECTION VIEW

REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	TRACER WIRE AT WATER SERVICE LINE
NO.	DATE	BY		DETAIL NO.: PVC-TW02
				SCALE: N.T.S. DATE: 3/28/2024

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET
	02-04-26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

WATER MAIN DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
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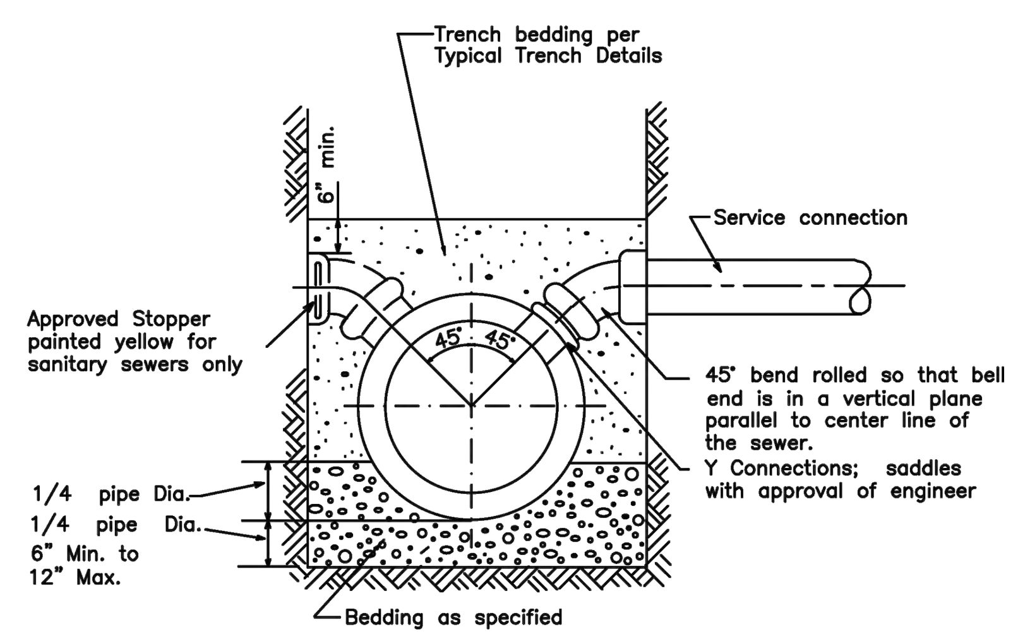
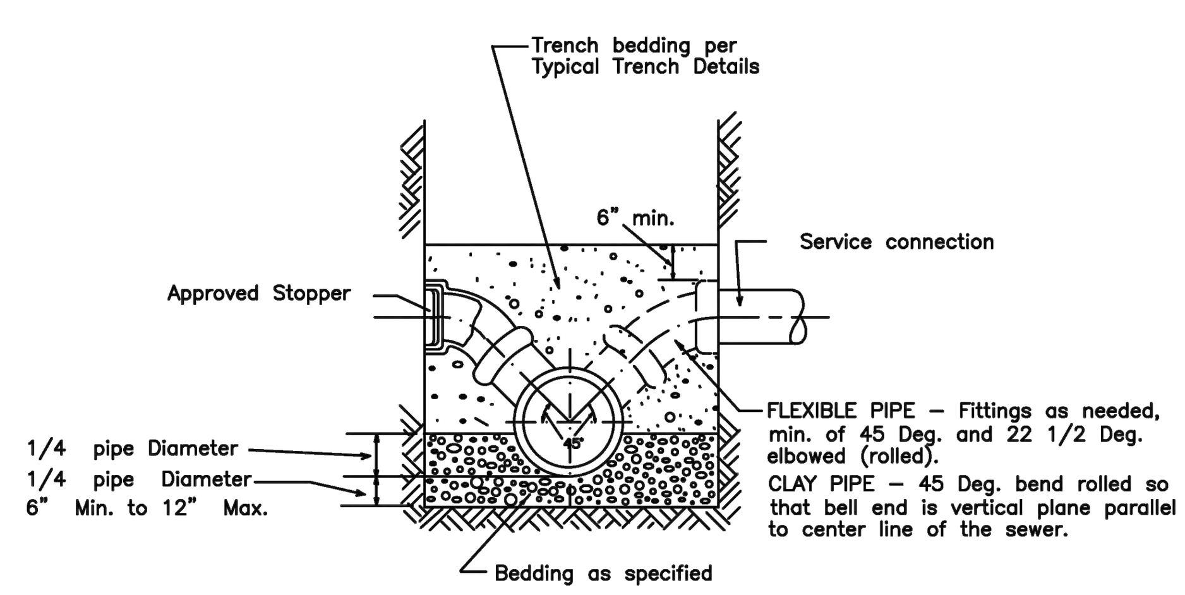
SHEET NO.
C7.3



TYPICAL SLANT DETAIL



TYPICAL Y – BRANCH DETAIL

Notes

Connections of service laterals and/or sewers to existing and/or proposed sewer pipe mains shall be as follows:

a. To PVC Sewer Mains - cut out a section of the existing sewer main, install a manufactured PVC wye (with six (6) inch or appropriate size branch) with water tight PVC no-hub couplings, or approved equal, pipe adaptors for connections on sewer mains 18-inch and smaller. Where sewer mains are larger then 18-inch, Inserta-tees maybe used, manufactured by Inserta Fittings Company, or approved equal. In no case shall the connections for other than six (6) inch lateral connections exceed 2/5 the diameter of the main sewer. PVC to PVC piping connections should be completed using a manufactured PVC No-Hub coupling or unless approved by the Engineer. Pipe bedding and installation shall conform to the Uniform Standards For Sewerage Improvements.

b. To Concrete Sewer Mains - cut out a section of the existing sewer main, install a manufactured RCP wye (with six (6) inch or appropriate size branch) with water- tight Strongback Fernco type, or approved equal, pipe adaptors. Where sewer mains are larger then 10-inch, core pipe and install a manufactured flexible watertight six (6) inch rubber boot with stainless steel band(s), Model NPC Kor-N-Tee (as manufactured by NPC) or approved equal. Pipe bedding and installation shall conform to the Uniform Standards For Sewerage Improvements. RCP to PVC piping connections should be completed using a Strongback Fernco connection or equal.

c. To Vitrified Clay Pipe Sewer Mains - remove one (1) section of existing pipe (joint-to-joint), install a manufactured watertight PVC wye (with six (6) inch or appropriate size branch) with water-tight Strongback Fernco type, or approved equal, pipe adaptors on sewer mains 18-inch and smaller. Where sewer mains are larger then 18-inch, Inserta-tees maybe used, manufactured by Inserta Fittings Company, or approved equal. In no case shall the connections (for other than six (6) inch lateral) connections exceed 2/5 the diameter of the main sewer. Pipe bedding and installation shall conform to the Uniform Standards For Sewerage Improvements.

d. Encasement in concrete is required if ground cover is less than 3 feet for all pipes.

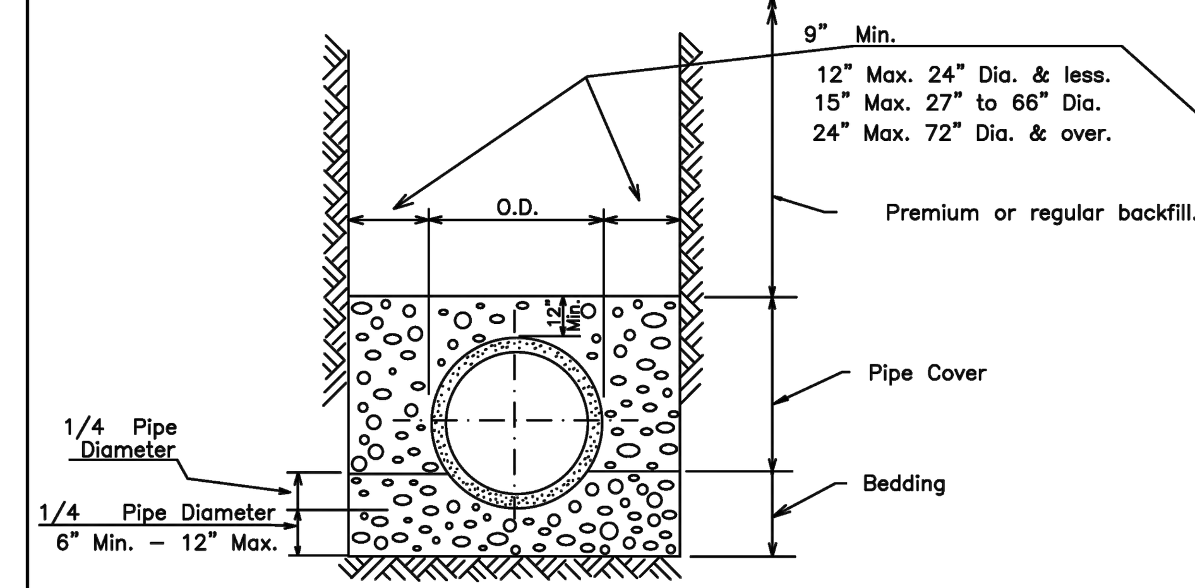
e. Core bore seal shall meet ASTM C-923 and ASTM C-167.

f. New construction of Clay Wyes, encasement of wye with 3000# concrete and extend concrete 24" on each site of the wye, min. 6" above pipe.

SLANT AND Y – BRANCH DETAILS

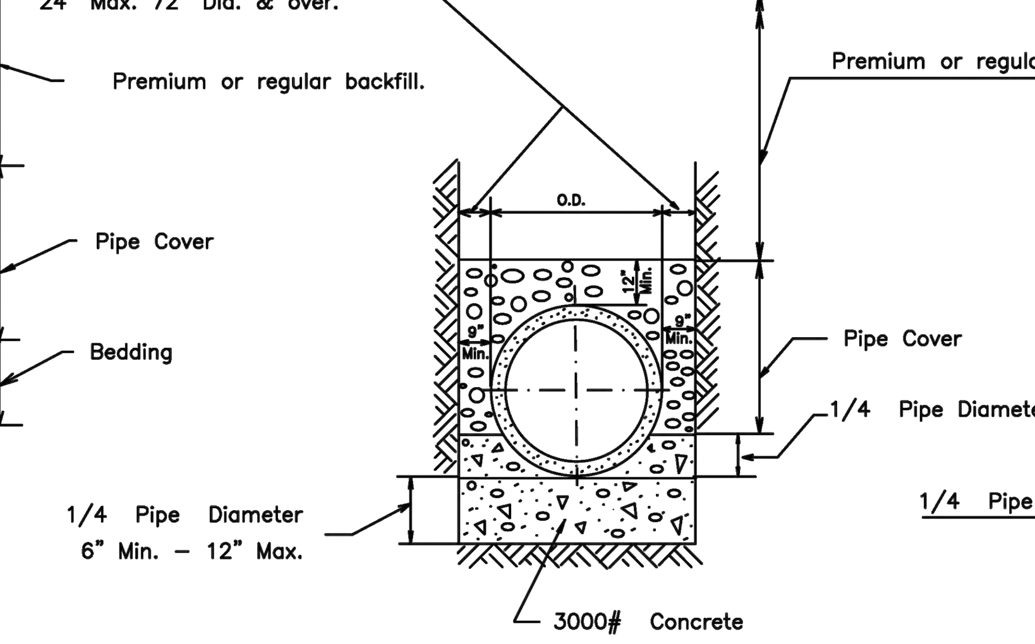
REVISIONS:	SCALE NO SCALE	DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO SHEET NO. 11



TYPICAL TRENCH DETAIL (FLEXIBLE PIPE)

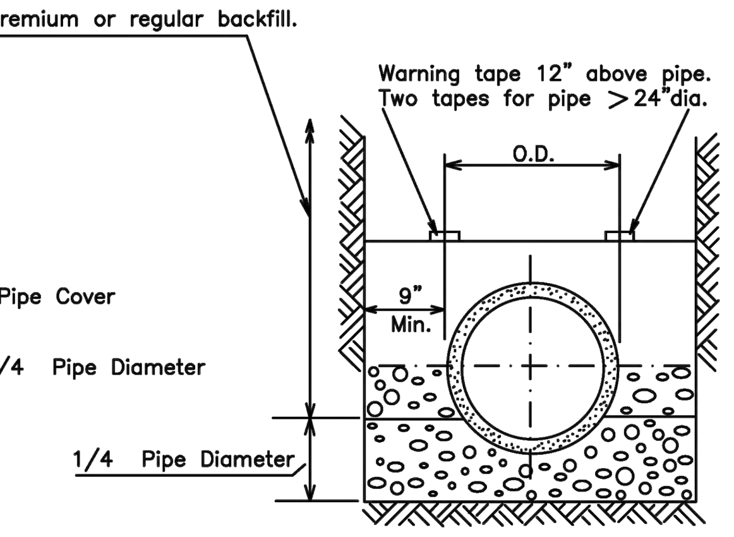
Trench width and concrete cradle width shall be O.D. of pipe plus 9" on each side of pipe.



TYPICAL TRENCH DETAIL WITH CONCRETE CRADLE

NOTE:

Lateral connections to have a minimum bedding depth of 3" coarse aggregate.



TYPICAL TRENCH DETAIL FOR CONCRETE OR DUCTILE IRON PIPE

Pipe Cover shall consist of coarse interlocking aggregate no. 57,6,67,68,7,78,or8.

Bedding shall consist of coarse interlocking aggregate no.57,6,67, 68, 7, 78, or 8 for 60" or smaller diameter pipe. For 66" or larger diameter pipe no. 4 aggregate may also be used.

Premium Backfill shall consist of coarse interlocking aggregate no. 57,6,67,68,7,78,8,304, also limestone screenings.

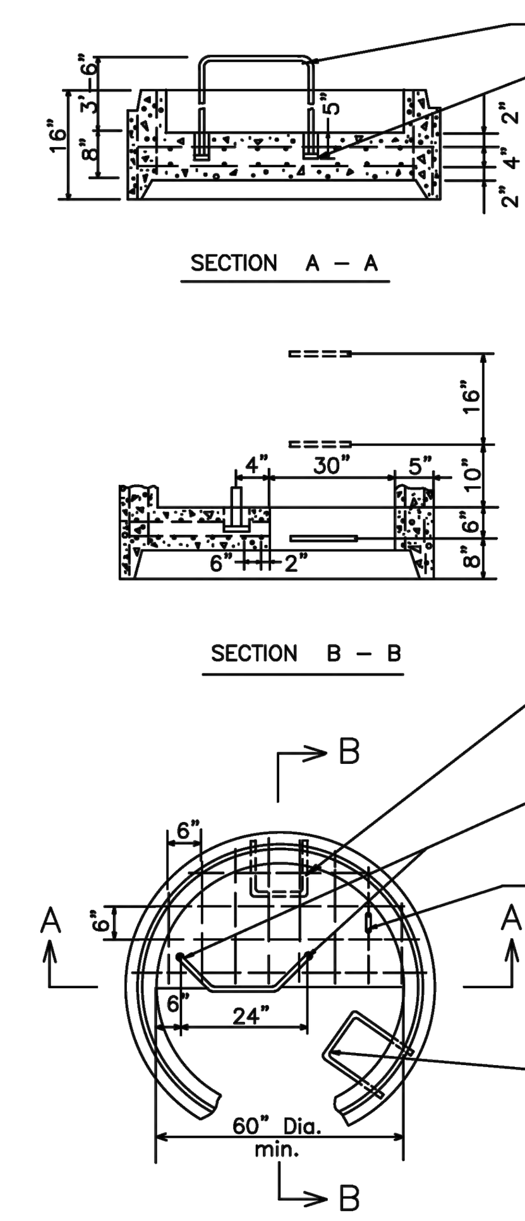
For concrete and ductile iron pipe, pipe cover is to the springline or greater.

In paved areas coarse interlocking aggregate to the top of the trench on all types of pipe.

TYPICAL TRENCH DETAILS

REVISIONS:	SCALE NO SCALE	DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO SHEET NO. 12



1 1/2 " Dia. Solid steel bar Hand Rail

2 1/4 " Dia. Steel plate 3/4 " thick welded to both ends of 1 1/2 " steel bar with two passes of 1/4 " fillet weld.

NOTE:

In manholes less than 28 feet deep to the invert, landing platforms are not required. In manholes over 28 feet deep to the invert, generally landing platforms shall not be required; however, the requirement for landing platforms shall be addressed on a case by case basis.

If the responsible authority requires landing platforms, the platforms shall be installed in manholes over 28 feet deep to the invert, and the maximum vertical spacing for landing platforms shall be 20 feet. The landings shall conform to the Uniform Standards Landing Riser Detail.

Manhole steps start 12" to 16" above landing platform floor and continue vertically above to the next landing platform or top outlet

Two 2 1/2 " Dia. Precast openings 5" deep.

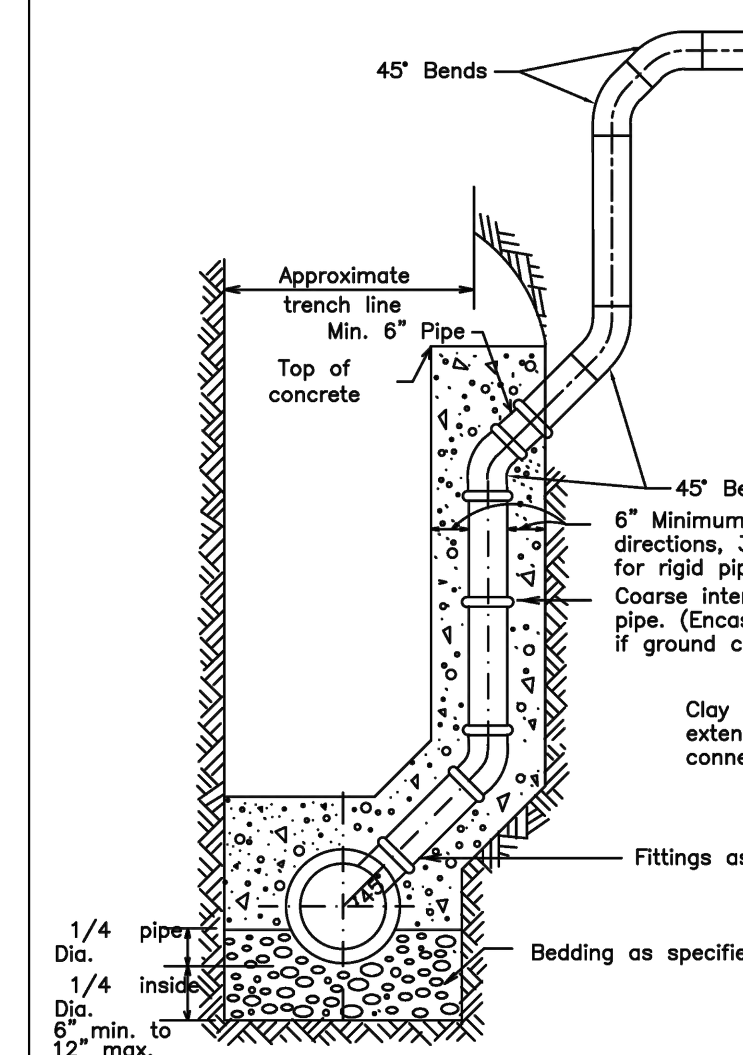
Typical bar placement in landing riser – #4 Rebar.

If multiple landings are required rotate adjacent landings 90°
A 90° clear opening must be seen from top to bottom of manhole.

Manhole steps stop 4' above top of landing platform.

LANDING PLATFORM DETAIL FOR PRECAST MANHOLE

REVISIONS:	SCALE NO SCALE	DATE: JANUARY 2020



The pipe shall be plugged with approved stopper. Stopper shall be painted yellow for the sanitary sewer connection.

Clay and concrete pipe concrete shall extend 24" each way from the service connection for flexible pipe 12".

TYPICAL RISER DETAIL

SCALE NO SCALE	DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO SHEET NO. 10

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

SANITARY SEWER DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

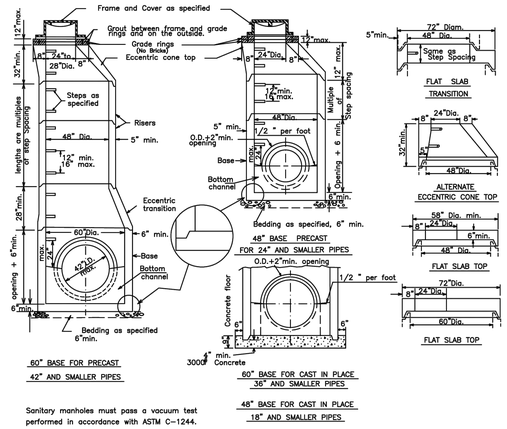
NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	04–27–26	PERMIT SET
	02–04–26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

SHEET NO.

C7.4



NOTES

Sections of the precast manhole shall be cast and assembled with either all tongue or all groove ends up. Lift holes may be provided in each section for handling.

TOP AND TRANSITION /or reducer/ Sections may be either eccentric cone, concentric cone or flat slab.

BASES for Manholes are shown with monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately.Openings for inlet and outlet pipes shall be provided, either when the unit is cast or later, to meet project requirements.Bottom channels may be formed of concrete precast in the base or by field construction. Floors may also be poured in place.

OPENINGS IN RISER SECTIONS for ALL pipes (Sanitary, Combined & Storm) shall be prefabricated. Flexible connections shall be provided for sanitary, storm and combined sewers. Premium seals shall meet A.S.T.M C-923.

JOINT SEALS between precast manhole sections and sewers shall be resilient and flexible gasket joints shall meet A.S.T.M C-443, FEDERAL SPECIFICATIONS SS-S-00210 (210 A) and AASHTO M-198

MANHOLE JOINTS and GRADE RINGS shall be sealed externally and between the grade rings with a layer of mastic compound such as Foberlite, Kent Seal or equal.

MATERIALS for bases and other precast sections including reinforcement not specified hereon, shall comply with the specifications.

PRECAST MANHOLES shall conform to the requirements of A.S.T.M C-478.

SEAL all lift holes with approved concrete plugs.

LANDING PLATFORMS as shown on the LANDING DETAILS shall be installed in manholes that are over 28 feet deep to the invert with a maximum vertical spacing of 20 feet.

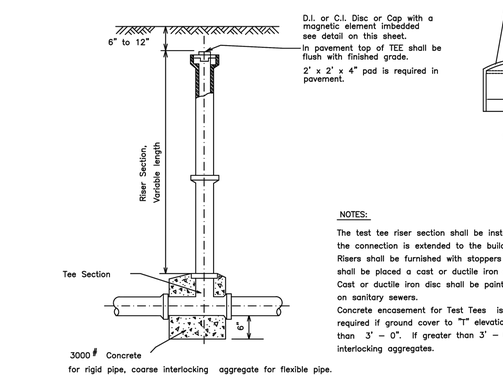
MANHOLE FRAMES – chimney seals will be required on all new sanitary manholes.

SANITARY MANHOLES shall have a minimum 3" vertical drop from casting elevations.

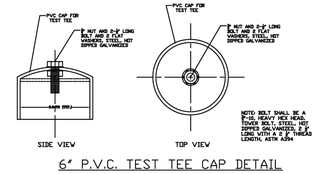
PRECAST CONCRETE MANHOLE
42" PIPE OR SMALLER

REVISIONS: | SCALE NO SCALE | DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO SHEET NO. 5



6" X 6" TEST TEE & 6" RISER FOR STORM -ND S-NIT-RY SEWERS.



6" P.V.C. TEST TEE CAP DETAIL

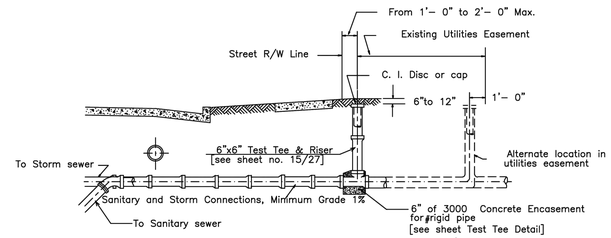
NOTES:

The test tee riser section shall be installed when the connection is extended to the building.
Risers shall be furnished with stoppers upon which shall be placed a cast or ductile iron disc.
Cast or ductile iron disc shall be painted yellow on sanitary sewers.
Concrete encasement for Test Tees is required if ground cover to "T" elevation is less than 3' – 0". If greater than 3' – 0" use coarse interlocking aggregates.

TEST TEE

REVISIONS: | SCALE NO SCALE | DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO SHEET NO. 16



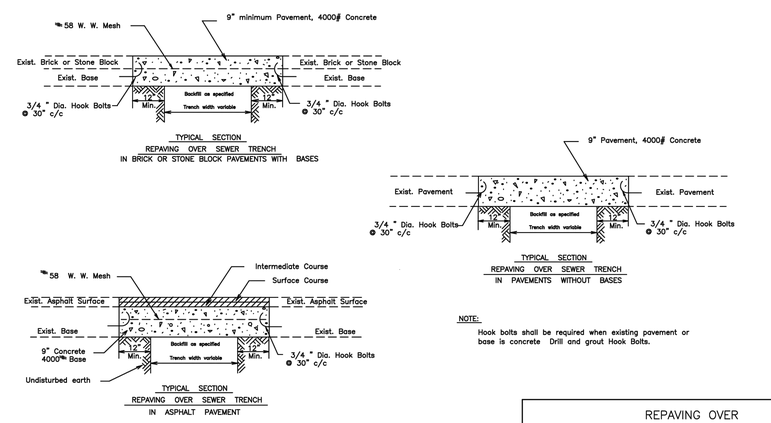
NOTE:

House connections shall be connected into the top half of the sewer pipe.
six inch, class 200, cast iron pipe is required for all bored sewer service connections including slip on rubber joints with an ANSI thickness classification No.25, also
6 inch, ductile iron cement lined pipe may be used including slip on rubber joints with an ANSI thickness classification No. 53.

LATERAL CONNECTIONS

REVISIONS: | SCALE NO SCALE | DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO SHEET NO. 15



NOTE:

Hook bolts shall be required when existing pavement or base is concrete Drill and grout Hook Bolts.

REPAVING OVER SEWER TRENCH

REVISIONS: | SCALE NO SCALE | DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO SHEET NO. 13

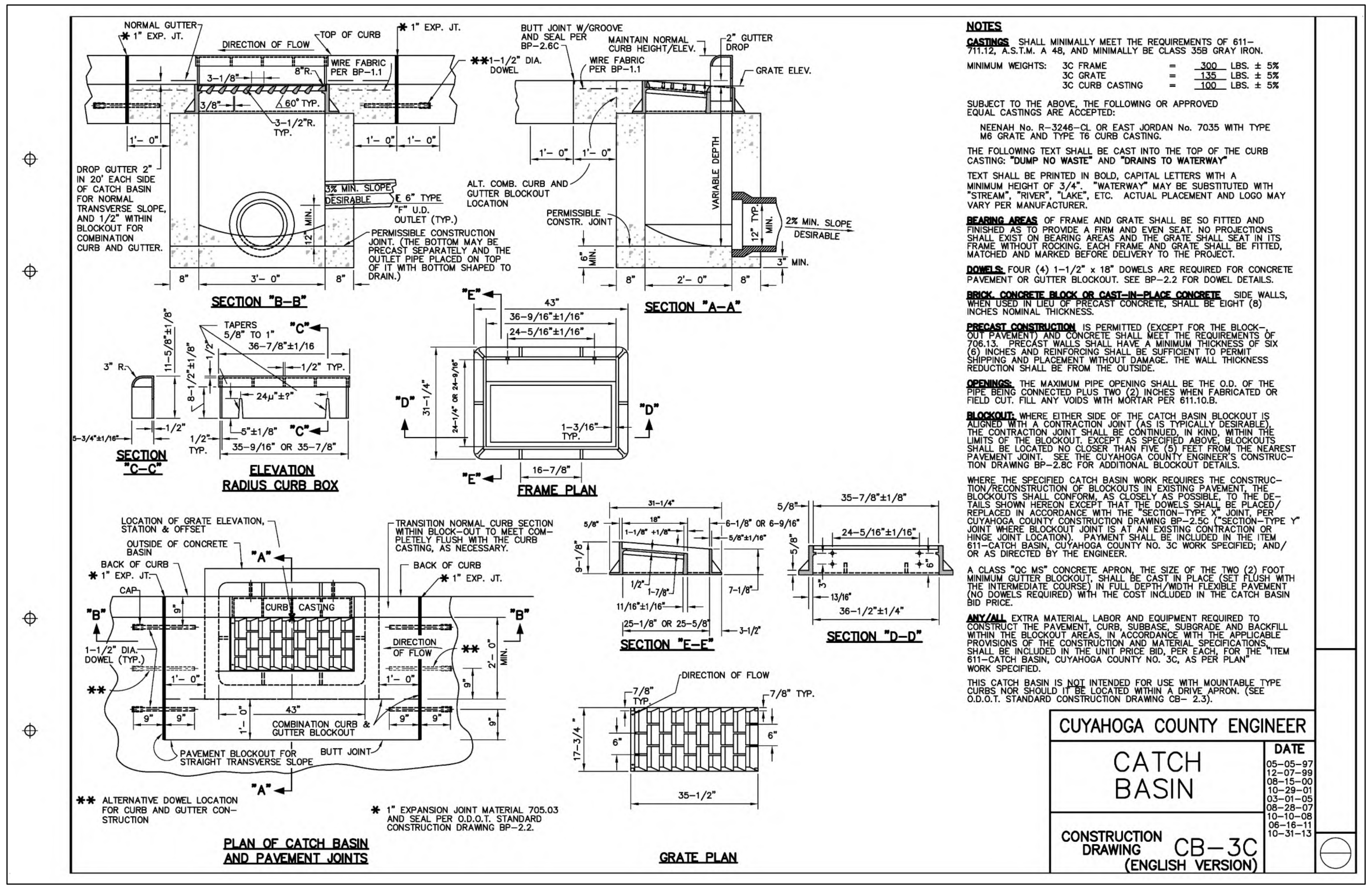
THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION
SANITARY SEWER DETAILS
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

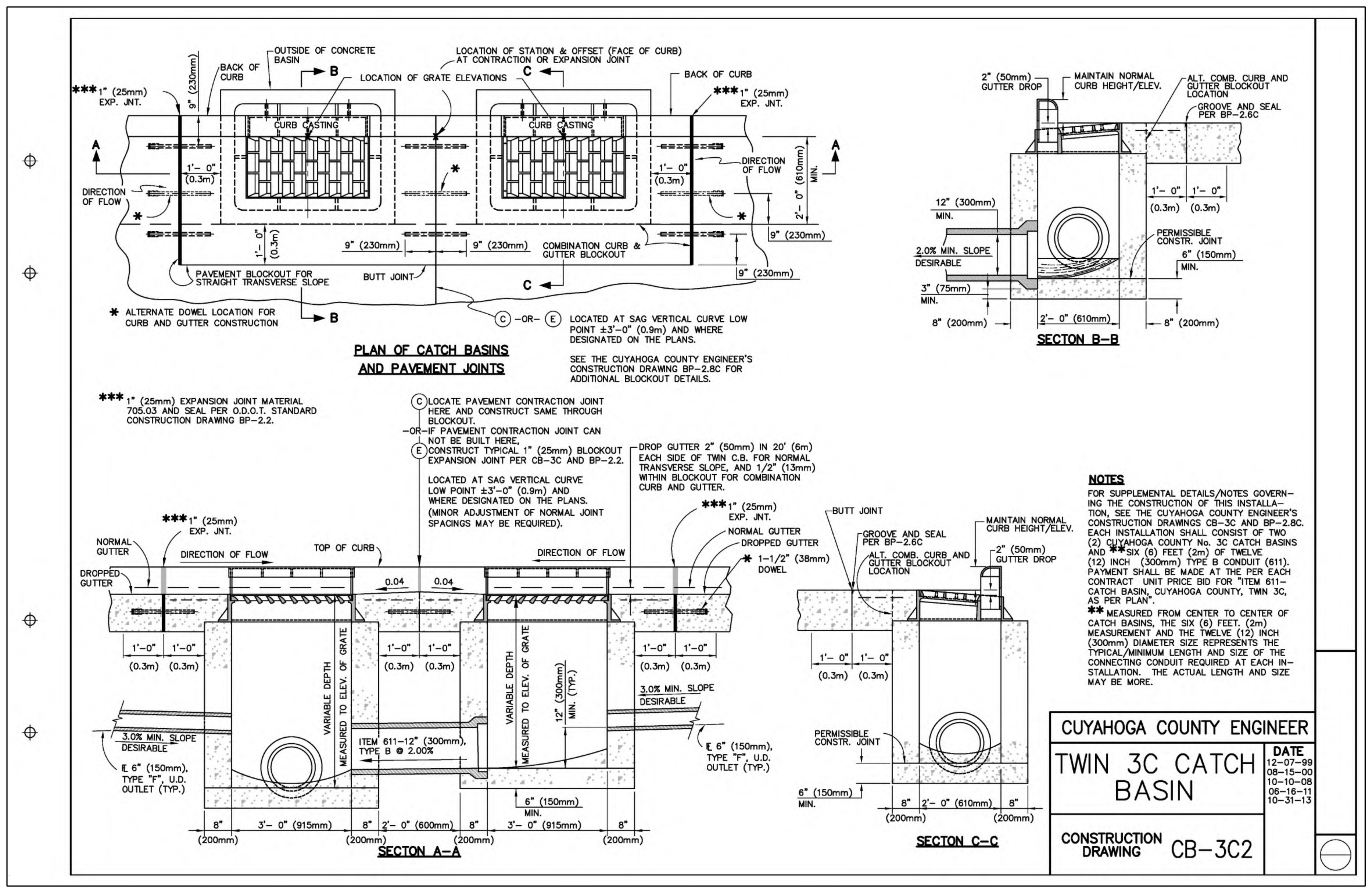
NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.5151 | Fax: 440.884.5154
www.neffassoc.com

REV NO	DATE	DESCRIPTION
	04–27–26	PERMIT SET
	02–04–26	PERMIT SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

SHEET NO.
C7.5





NOTES:

GENERAL: With normal soil and site conditions this standard precast manhole may be used for any required manhole depth. Sections of the precast manhole shall be cast and assembled with either all tongue or all groove ends up. Lift holes may be provided in each section for handling.

TOP AND TRANSITION (or reducer): Sections may be either eccentric cone or flat slab.

BASES: For manholes are shown with monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately. Openings for inlet and outlet pipes shall be provided, either when the unit is cast or later, to meet project requirements. Bottom channels may be formed of concrete precast in the base or by field construction. Floors may also be poured in place.

OPENINGS IN RISER SECTIONS: for 18" and smaller inlet pipes shall be prefabricated.

CONNECTIONS: Connections between precast manhole sections, and pipes on sanitary sewers, shall be sealed with resilient connectors conforming to ASTM C- 923.

JOINT SEAL: between precast manhole sections on sewer structures shall be resilient and flexible gasket joints per ASTM C-443.

MANHOLE JOINTS AND GRADE RINGS: shall be sealed externally and between the grade rings with a layer of mastic compound such as Kent Seal or equal.

OPENINGS: the maximum pipe opening shall be the O.D. of the pipe being supplied plus 2" when fabricated or field cuts. Fill any voids per ODOT 602.

MATERIALS: for bases and other precast sections, including reinforcement not specified hereon, shall comply with the requirements of ODOT 706.13.

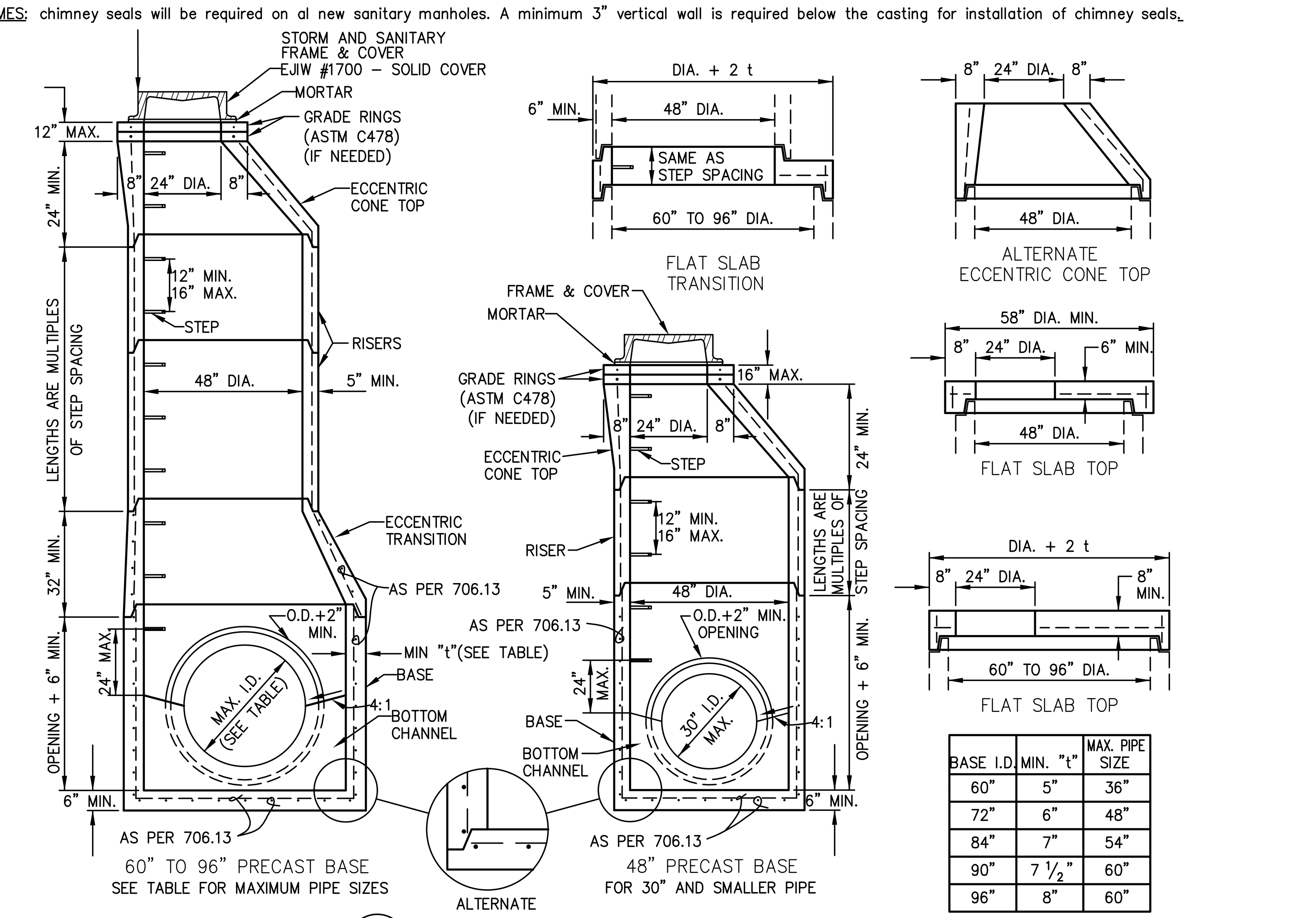
PRECAST MANHOLES: shall conform to the requirements of ASTM C 478.

STEPS, FRAMES AND COVERS: shall conform to the material requirements of ODOT 604. All steps shall have a depressed tread or a 1/2" minimum cleat height at the ends. Steps installed in fresh concrete shall be embedded to a minimum depth of 4". Steps installed in mortar joints shall be embedded to a minimum depth or 7". Friction-fit steps meeting the requirements of ODOT 711.31 with rebar may be used in precast manholes. The receiving holes for friction-fit steps shall not penetrate the manhole walls. The Engineer may require the contractor to test load a maximum of one step per manhole to a proof load of 400 lbs. in direct pull. The equipment and method used shall meet the approval of the Engineer. If the selected step fails the pullout test, the remaining steps in that manhole shall also be tested. All steps not passing the pullout test shall be removed and a new step installed and tested to the satisfaction of the Engineer. Cost of testing shall be incidental to the unit price bid for the manhole.

SEAL: all lift holes with approved concrete plugs.

LANDING PLATFORMS: shall be installed in manholes that are over 28 feet deep to the invert with a maximum vertical spacing of 20 feet.

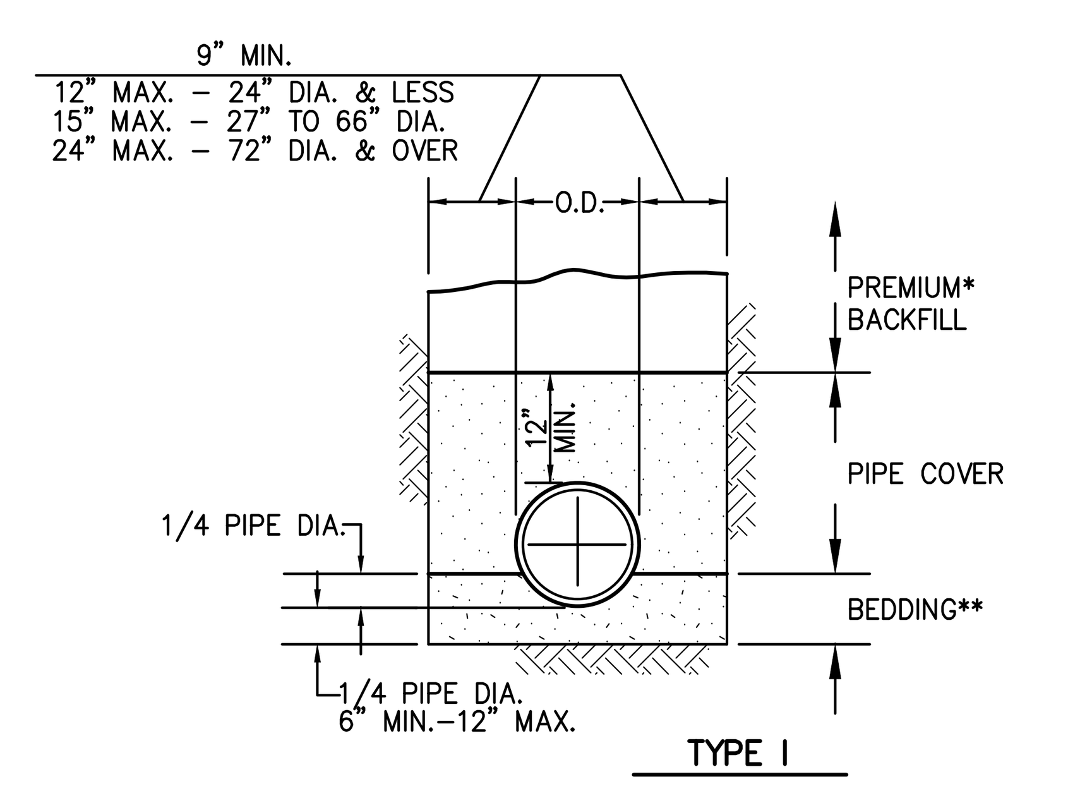
MANHOLE FRAMES: chimney seals will be required on al new sanitary manholes. A minimum 3" vertical wall is required below the casting for installation of chimney seals.



BASE I.D.	MIN. "t"	MAX. PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2"	60"
96"	8"	60"

1 PRECAST CONCRETE STORM MANHOLE
NOT TO SCALE

(PER ASTM C-478)



2 TYPICAL TRENCH DETAILS
NOT TO SCALE

* FOR STORM MANHOLE USE ONLY (SEE C7.4 FOR SANITARY MANHOLE)

* NOTE:
PROVIDE PREMIUM BACKFILL TO SUBGRADE UNDER ALL PROPOSED AND EXISTING PAVED AREAS INCLUDING SIDEWALK. OR WHEN TRENCH IS WITHIN 45° ZONE OF INFLUENCE OF PROPOSED PAVED AREAS OR BUILDING FOUNDATIONS. NATIVE BACKFILL SHALL ONLY BE USED WHEN APPROVED IN WRITING BY THE OWNER, OWNER'S GEOTECHNICAL ENGINEER AND THE CITY ENGINEER.

** NOTE:
LATERAL CONNECTIONS TO HAVE A MINUMUM BEDDING DEPTH OF 3" COARSE AGGROGATE.

BEDDING
ASTM D2321, BEDDING SHALL CONSIST OF COARSE INTERLOCKING AGGREGATE No. 6, 67, 68, 7, 78, OR 8 FOR 60" OR SMALLER DIA. PIPE. FOR 66" DIA. PIPE OR LARGER No. 4 AGGREGATE MAY ALSO BE USED.

PREMIUM BACKFILL
PREMIUM BACKFILL SHALL CONSIST OF ODOT ITEM 304 LIMESTONE OR APPROVED ALTERNATE.

PIPE COVER
PIPE COVER SHALL CONSIST OF COARSE INTERLOCKING AGGREGATE No. 6, 67, 68, 7, 78, OR 8 LIMESTONE.

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

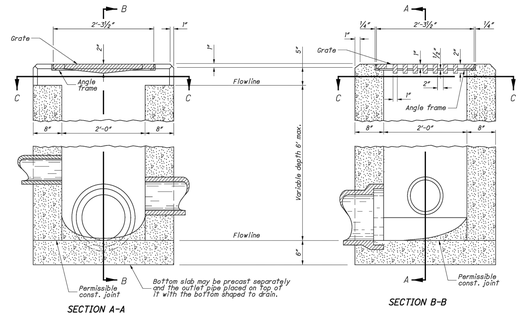
THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

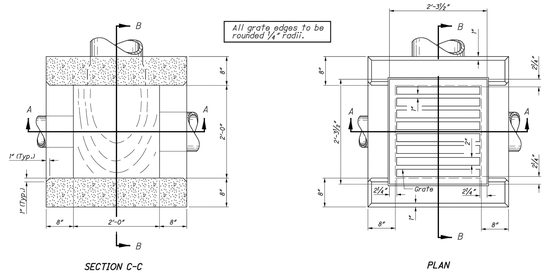
STORM SEWER DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
6405 York Road | Parma Heights, Ohio 44130
Tel 440.884.3100 | Fax 440.884.3104
www.neff-assoc.com

SHEET NO.
C7.6





CATCH BASIN No. 2-2A

NOTES

GENERAL: Catch Basins 2-2A and 2-2B are not intended for use in roadway applications. Catch Basin 2-2C is intended for parking lot use only.

CATCH BASINS 2-2A, 2-2B & 2-2C: This sheet depicts Catch Basin 2-2A. See Sheet 2 of 2 for Catch Basin 2-2B & 2-2C.

GRATE AND FRAME: Furnish a design essentially the same and equally as strong as the one shown (see Construction Information Table), or meet the requirements of CMS 711.14. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

Cast the following text into the top of the grate:

"DUMP NO WASTE" and **"DRAINS TO WATERWAY"**

Print text in bold, capital letters at least 1/2" high. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Construct brick or cast-in-place walls with a nominal 8" thickness. Provide precast walls of at least 6" thick with sufficient reinforcing to permit shipping and handling without damage. Do not use brick above the flow line of the side opening for Type 2-2A.

CONCRETE: Use 4000 psi compressive strength for cast-in-place concrete. Meet the requirements of CMS 706.13 for all precast concrete and mark with the catch basin number.

PRECAST BASE: If a precast base is used, set it deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Do not use brick layers to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, location and elevation are at the top center of the grate.

MINIMUM DEPTH: The minimum depth of CB No. 2-2A is the outside diameter (O.D.) of the outlet pipe plus 1".

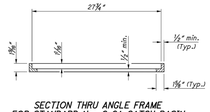
OPENINGS: Ensure pipe openings are the O.D. of the pipe being supplied plus 2" when fabricated or field cut. Fill any voids per C&MS 611.

2-2A SIDE INLETS: Provide inlets on both sides of the No. 2-2A catch basin in sags and on upstream side only where the ditch has a continuous down grade past the catch basin. Do not use CB 2-2A within the Clear Zone. The flow line should be 4" to 6" below normal ditch returning to normal 10' to 15' each side of the inlet.

PAYMENT: All materials and labor, including excavation and backfilling, are paid for under **Item 611 - Catch Basin, No. 2-2A.**

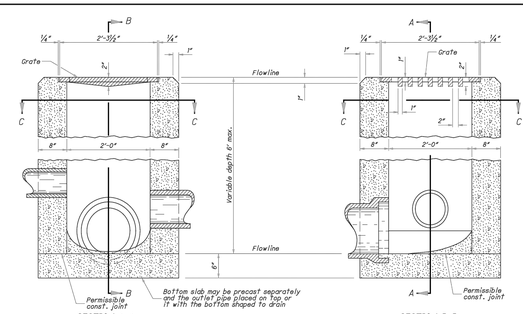
CONSTRUCTION INFORMATION
Minimum weight of grate, 120 lbs.
Minimum weight of frame, 40 lbs.

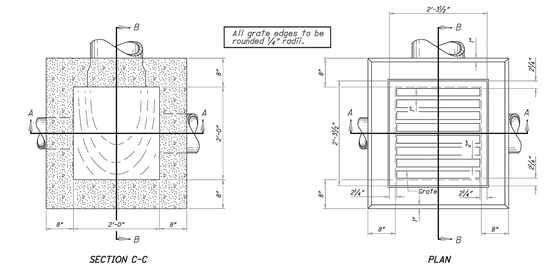
CATCH BASIN	OUTLET PIPE SIZE
2-2A, 2-2B, 2-2C	12" To 21"



SECTION THRU ANGLE FRAME FOR STANDARD No. 2-2A CATCH BASIN

DESIGN & DRAFTING METHODS ENGINEER	Jeffery E. Syar
REVISIONS	7-19-02 7-15-05 7-20-12 1-18-13 1-15-16 7-20-18 7-19-19
ROADWAY PROJECTS MANAGER	M. Cozzoli
OFFICE OF HIGHWAY ENGINEERING	
STANDARD HYDRAULIC CONSTRUCTION DRAWING	CATCH BASINS Nos 2-2A, 2-2B & 2-2C
SCD NUMBER	CB-1.1
	1 / 2





CATCH BASIN No. 2-2B

NOTES

CATCH BASINS 2-2A, 2-2B & 2-2C: This sheet depicts Catch Basin 2-2B & 2-2C. See Sheet 1 of 2 for Catch Basin 2-2A.

CB-2-2B GRATE: Furnish a design essentially the same and equally as strong as the one shown (see Construction Information Table), or meet the requirements of CMS 711.14. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

If necessary, bicycle safe grates will be specified in the plans. Furnish Neenah No. R-4655-S or EJ No. 5110M3 (005510A3) grates or approved equals.

Place grate elevation 4" to 6" below normal ditch and return to normal 10' to 15' each side of inlet.

CB-2-2C FRAME & GRATE: Where the catch basin is specified for use in parking lot, furnish Neenah No. R-1978-MSG or EJ No. V-5822 (456220U) frame and V-5822 (456230U) grate or approved equals. If necessary, bicycle safe grates will be specified in the plans. Furnish Neenah No. R-5405 grate or EJ No. 5255M (005255J3) grate or approved equals.

On cast-in-place and precast units, provide a level surface on the catch basin 4" below the plan grate elevation for setting the frame and grate assembly. Provide a concrete apron to encase and secure the frame of a width not less than the thickness of the catch basin walls that the frame was placed on or as shown in the plans. Slope apron to provide local depression.

GRATE TEXT: Cast the following text into the top of the grate:

"DRAINS TO WATERWAY" and **"DUMP NO WASTE"**

Print text in bold, capital letters at least 1/2" high. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Construct brick or cast-in-place walls with a nominal 8" thickness. Provide precast walls of at least 6" thick with sufficient reinforcing to permit shipping and handling without damage.

CONCRETE: Use 4000 psi compressive strength for cast-in-place concrete. Meet the requirements of CMS 706.13 for all precast concrete and mark with the catch basin number.

PRECAST BASE: If a precast base is used, set it deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Do not use brick layers to adjust the top elevation.

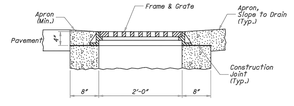
LOCATION AND ELEVATION: When given on the plans, location and elevation are at the top center of the grate.

MINIMUM DEPTH: The minimum depth of CB No. 2-2B is the outside diameter (O.D.) of the outlet pipe plus 4". The minimum depth of CB No. 2-2C is the outside diameter (O.D.) of the outlet pipe plus 8".

OPENINGS: Ensure pipe openings are the O.D. of the pipe being supplied plus 2" when fabricated or field cut. Fill any voids per C&MS 611.

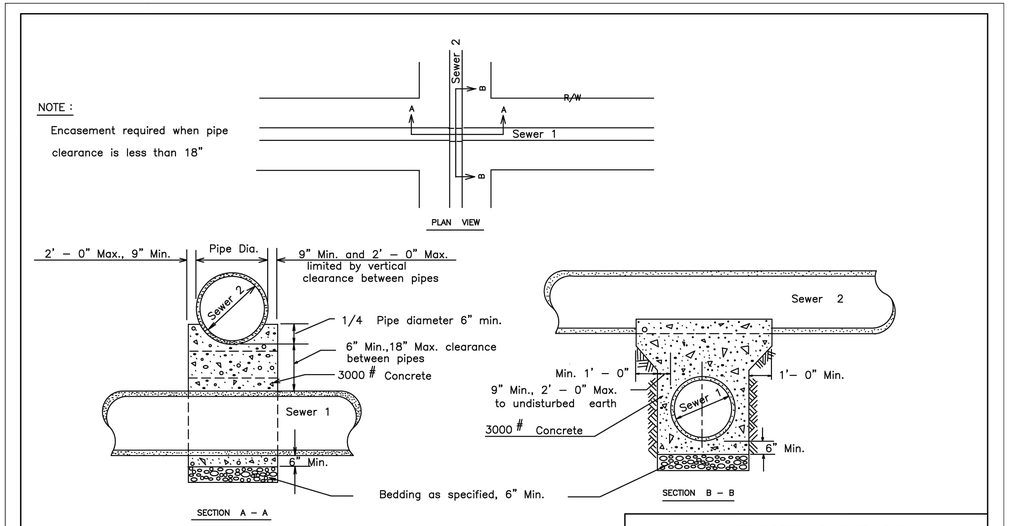
PAYMENT: All materials and labor, including excavation and backfilling, are paid for under **Item 611 - Catch Basin, No. 2-2B or 2C.**

CONSTRUCTION INFORMATION
Minimum weight of grate, 120 lbs.



CATCH BASIN No. 2-2C

DESIGN & DRAFTING METHODS ENGINEER	Jeffery E. Syar
REVISIONS	7-19-02 7-15-05 7-20-12 1-18-13 1-15-16 7-20-18 7-19-19
ROADWAY PROJECTS MANAGER	M. Cozzoli
OFFICE OF HIGHWAY ENGINEERING	
STANDARD HYDRAULIC CONSTRUCTION DRAWING	CATCH BASINS Nos 2-2A, 2-2B & 2-2C
SCD NUMBER	CB-1.1
	2 / 2



CONCRETE ENCASEMENT

MONOLITHIC CRADLING OF UPPER PIPE

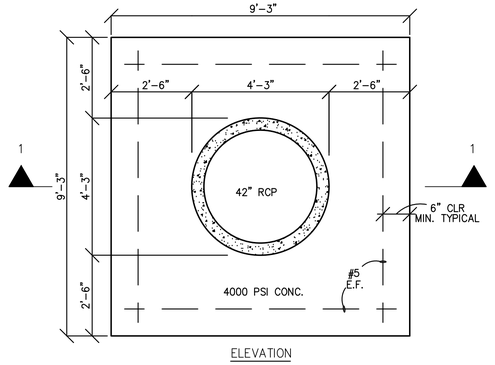
REVISIONS:

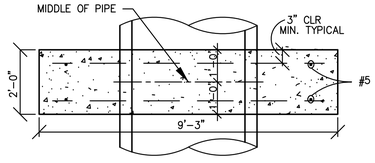
SCALE NO SCALE

DATE: JANUARY 2020

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO.14





ANTI–SEEP COLLAR

NOT TO SCALE

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

STORM SEWER DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

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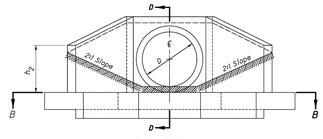
REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

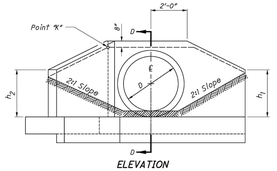
DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

SHEET NO.

C7.7



ELEVATION



ELEVATION

NOTES

APPLICATION: Provide Full Height Headwalls for skewed and non-skewed culverts having a diameter or rise of 42" to 84" inclusive. Use Type "A" when the skew angle (B) is ten degrees or less and Type "B" when the skew angle is over ten degrees.

DESIGN DATA: The following design data is assumed:

Internal Angle of Friction of Backfill Soil, ϕ_{bf} = 30°
Total Unit Weight of Backfill Soil = 120 pcf
Internal Angle of Friction (Drained), Foundation Soil, ϕ_f = 28°
Undrained Shear Strength (Cohesive), Foundation Soil, S_u = 1000 psf
Unit Weight of Concrete = 150 pcf
Slope of Backfill = 2H

Concrete Class QC1 - Compressive Strength = 4000 psi

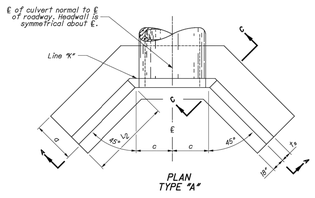
Reinforcing Steel - Grade 60 Minimum Yield Strength
60,000 psi (All Reinforcing Shall be Epoxy Coated.)

Based on the assumed design data, the headwalls for the standard design achieve factored bearing resistances that are greater than their respective factored bearing pressures. If a backfill material with a higher internal angle of friction or a lighter total unit weight is used, or if a foundation soil with a higher drained internal angle of friction or a higher undrained shear strength is encountered, then the stability of the wall is satisfactory.

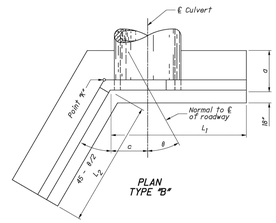
DETAILS AND QUANTITIES: Are shown for circular sections only. When used with reinforced elliptical concrete pipe or corrugated metal pipe arches, adjust dimensions and quantities to conform to those listed for the nearest size circular pipe. Apply the dimensions established by vertical diameter to span. Round all calculated dimensions established by horizontal diameter to the nearest 1'. Chamfer all exposed corners ¾".

HEADWALL LOCATION: Determine by intersection of the embankment slope at the back of the headwall at point "K". Provide 2H slopes adjacent to the headwall.

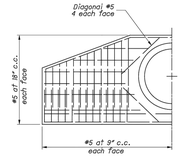
PAYMENT: Item 602 Concrete Masonry includes reinforcing.



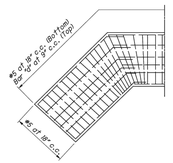
PLAN
TYPE "A"



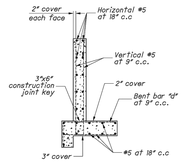
PLAN
TYPE "B"



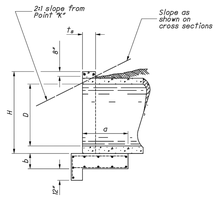
HALF SECTION A-A



HALF-SECTION B-B



SECTION C-C



SECTION D-D

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURAL ENGINEERING
07-20-18
DATE
CONSTRUCTION

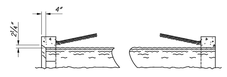
REVISIONS
07-20-2007
07-20-2012
07-19-2013
09-20-2017
07-20-2018

HW-1.1

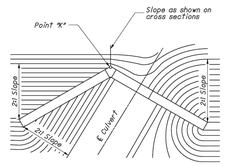
STANDARD BRIDGE DRAWING
FULL-HEIGHT HEADWALLS

1 / 2

RIGID PIPE



CORRUGATED PIPE
END TREATMENT OF HEADWALL



LOCATION AND GRADING PLAN FOR
SKEWED PIPE CULVERT - TYPE B

FULL-HEIGHT HEADWALLS (English)

PIPE DIA. D	H	a	b	c	t_s	Bar # d	8 ≈ 0° L_2	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	8 ≈ 15° L_1	L_2	h_1	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	8 ≈ 30° L_1	L_2	h_1	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	8 ≈ 45° L_1	L_2	h_1	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	PIPE DIA. D
42"	5'-4"	3'-3"	1'-6"	2'-6"	1'-6"	#5	3'-7"	3'-6"	7.2	7.1	695	8'-9"	4'-6"	4'-1"	3'-7"	7.6	7.5	656	7'-10"	5'-9"	3'-7"	3'-8"	7.8	7.7	688	7'-10"	7'-9"	3'-7"	3'-8"	9.0	8.9	794	42"
48"	5'-10"	3'-6"	1'-6"	2'-9"	1'-6"	#5	4'-4"	3'-9"	8.8	8.6	861	10'-0"	5'-4"	4'-6"	3'-10"	9.3	9.1	806	8'-9"	6'-10"	3'-10"	3'-11"	9.4	9.2	833	8'-9"	9'-2"	3'-10"	4'-0"	10.9	10.8	970	48"
54"	6'-5"	3'-9"	1'-6"	3'-0"	1'-6"	#5	5'-2"	4'-2"	10.8	10.5	1,001	11'-4"	6'-3"	5'-0"	4'-2"	11.3	11.0	977	9'-8"	7'-11"	4'-2"	4'-3"	11.2	11.0	1,002	9'-8"	10'-7"	4'-2"	4'-4"	13.1	12.9	1,149	54"
60"	7'-0"	4'-0"	1'-6"	3'-3"	1'-6"	#5	5'-11"	4'-5"	12.7	12.4	1,151	12'-7"	7'-2"	5'-4"	4'-6"	13.4	13.1	1,127	10'-7"	9'-0"	4'-4"	4'-7"	13.2	12.9	1,124	10'-7"	12'-0"	4'-4"	4'-7"	15.4	15.1	1,306	60"
72"	8'-2"	4'-6"	1'-7"	3'-9"	1'-6"	#7	7'-5"	5'-0"	17.5	17.1	1,808	15'-1"	8'-11"	6'-2"	5'-1"	18.5	18.0	1,803	12'-5"	11'-2"	4'-10"	5'-2"	18.0	17.5	1,770	12'-5"	14'-10"	4'-10"	5'-3"	21.0	20.6	2,080	72"
84"	9'-4"	5'-0"	1'-10"	4'-3"	1'-6"	#8	9'-0"	5'-8"	24.6	24.0	2,608	17'-7"	10'-5"	7'-0"	5'-9"	25.7	25.1	2,563	14'-7"	13'-4"	5'-6"	5'-10"	25.1	24.5	2,559	14'-3"	17'-8"	5'-4"	5'-10"	28.9	28.3	2,943	84"

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF STRUCTURAL ENGINEERING
07-20-18
DATE
CONSTRUCTION

REVISIONS
07-20-2007
07-20-2012
07-19-2013
09-20-2017
07-20-2018

HW-1.1

STANDARD BRIDGE DRAWING
FULL-HEIGHT HEADWALLS

2 / 2

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

STORM SEWER DETAILS

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

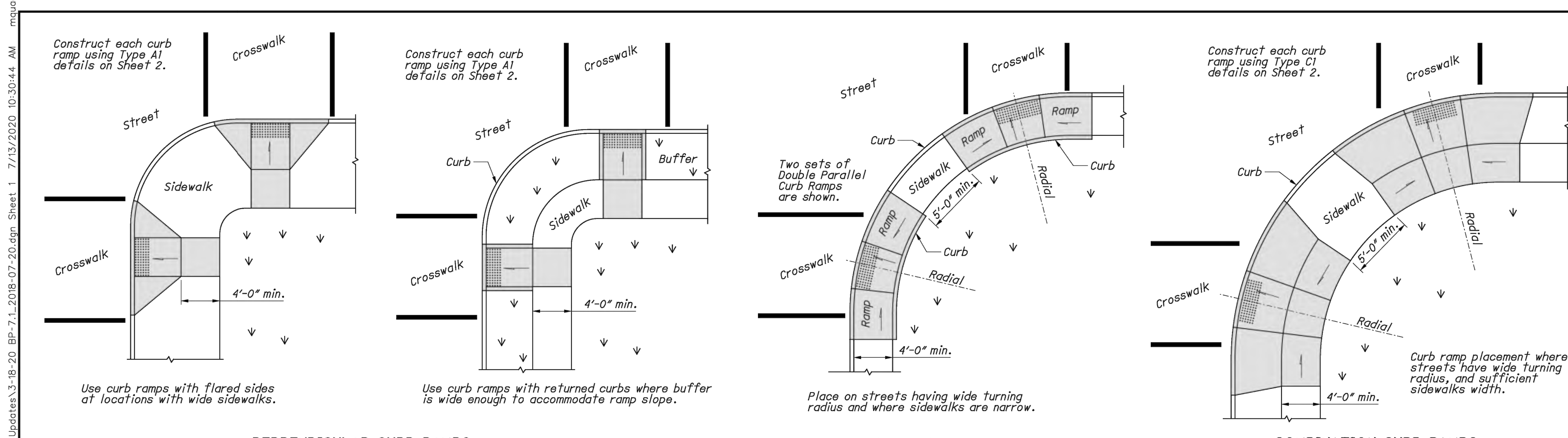
NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.1005 | Fax: 440.884.1104
www.neffassoc.com

SHEET NO.
C7.8

REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

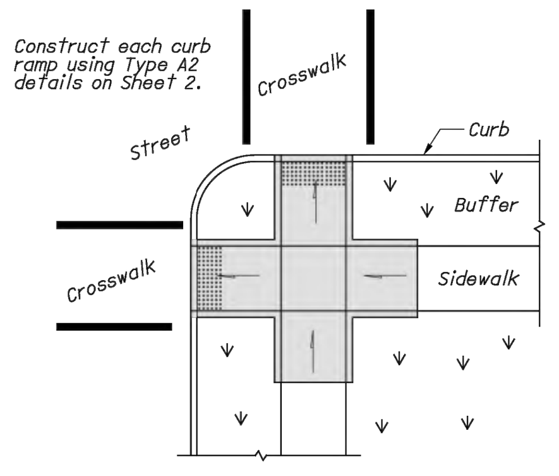
DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

N:\LAND DEVELOPMENT\Proj\14523E The Greens Subdivision\AutoCAD\14523E-DET.dwg, 4/27/2026 8:30:37 AM, KKraus



PERPENDICULAR CURB RAMPS — PARALLEL CURB RAMPS — COMBINATION CURB RAMPS

PREFERRED CONSTRUCTION PLACEMENT



NOTES

GENERAL: This drawing shows curb ramp types details and placement examples for curb ramp construction, including the installation of detectable warnings.

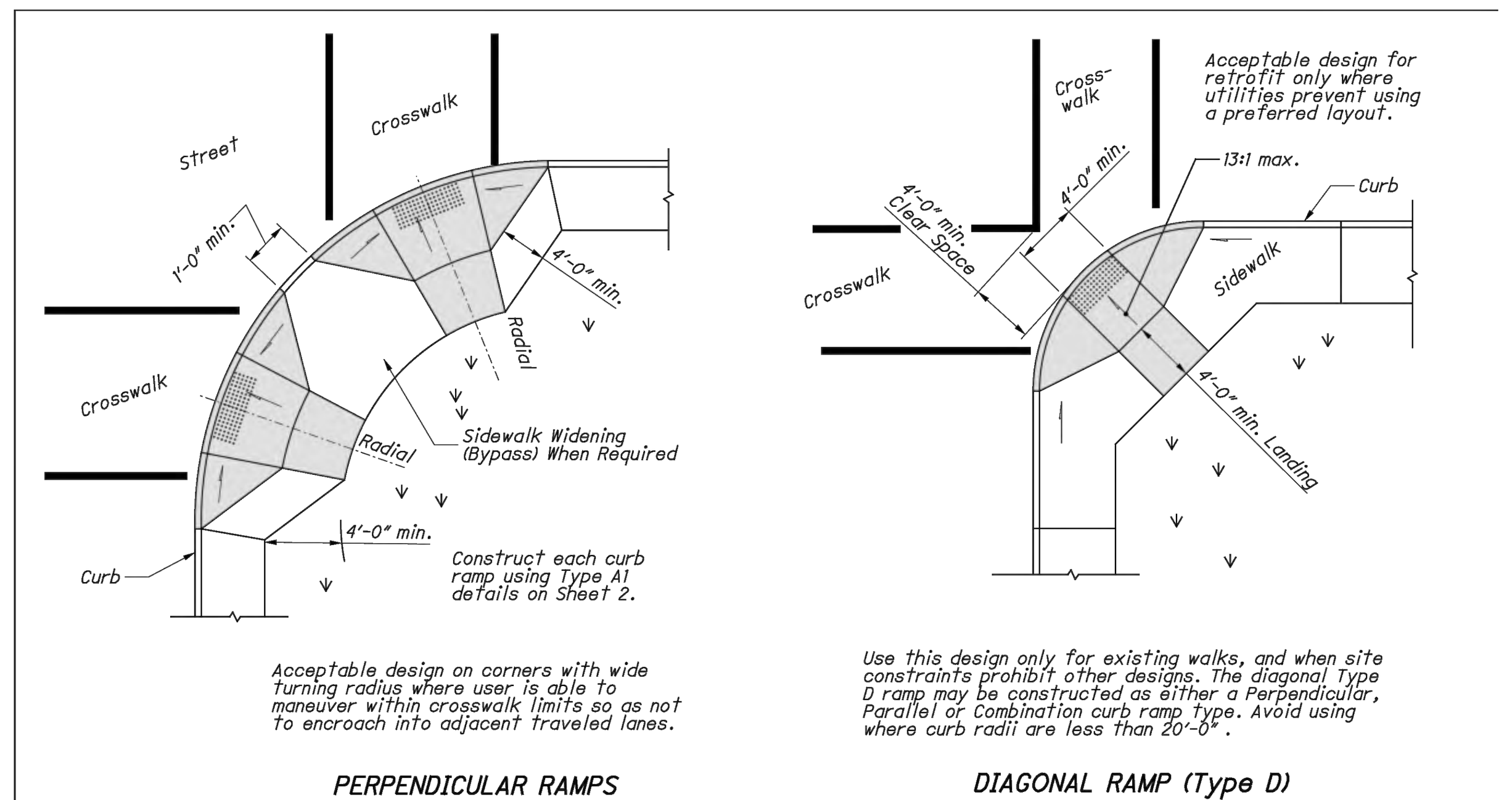
Curb ramp types are shown on Sheet 2 and include Perpendicular, Parallel, and Combined types as specified to be constructed in the locations shown on the project plans.

Curb ramps added to an existing intersection or walk should be individually detailed on the project plans to assure that the design is appropriate for site constraints and all items can be constructed to ADA standards. The contractor may adjust the placement of curb ramps if existing field conditions warrant with the approval of the Engineer.

PAYMENT: Measure and pay for the ramp area within the shaded limits of this drawing as Item 608 Curb Ramp, Square Foot. This includes the cost of any curb or curb and gutter, detectable warnings, landing areas and any additional materials, installation, grading, forming, and finishing required within the shaded area.

Work beyond the shaded ramp/landing area is paid for as curb (609) and walk (608). Removal of existing curb, walk (or existing curb ramps) are paid under Item 202.

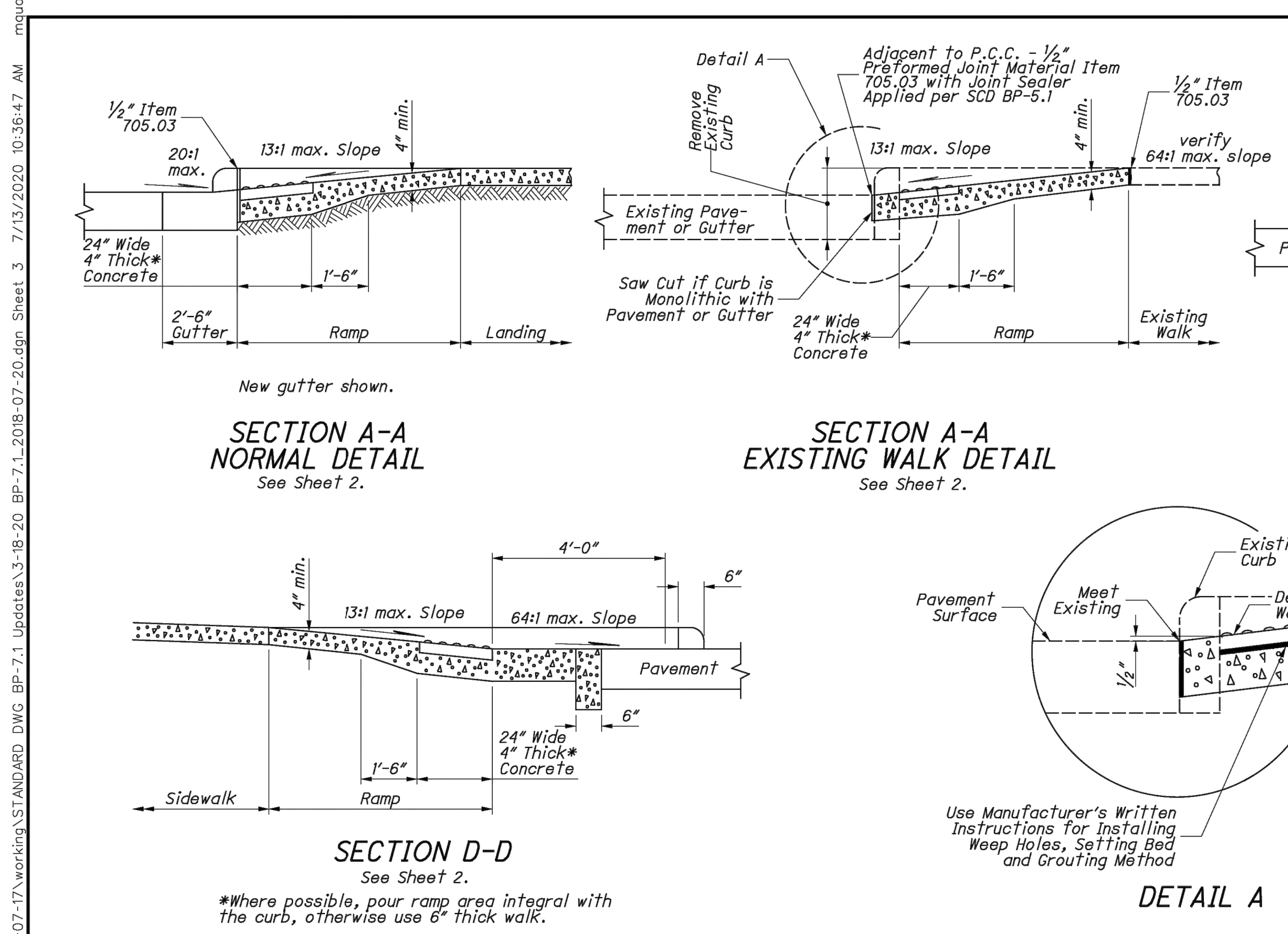
For at-grade crossing locations where only detectable warnings are required in order to acheive ADA compliance, measure and pay for the strip of detectable warnings as Item 608 Detectable Warning, Square Foot. The work to cast the tiles in place will also require removal of existing pavement (Item 202) to the nearest joint, or if no joint exists, a minimum of 4 feet.



PERPENDICULAR RAMPS — DIAGONAL RAMP (Type D)

ACCEPTABLE CONSTRUCTION PLACEMENT

OFFICE OF ROADWAY ENGINEERING — NEW CURB RAMPS (with Detectable Warnings) — BP-7.1 — 7-17-2020 — Brenton Bogard — D. Fisher — THIS DRAWING REPLACES BP-7.1 DATED 7-20-2018. — 1/3



SECTION A-A NORMAL DETAIL — See Sheet 2.

SECTION A-A EXISTING WALK DETAIL — See Sheet 2.

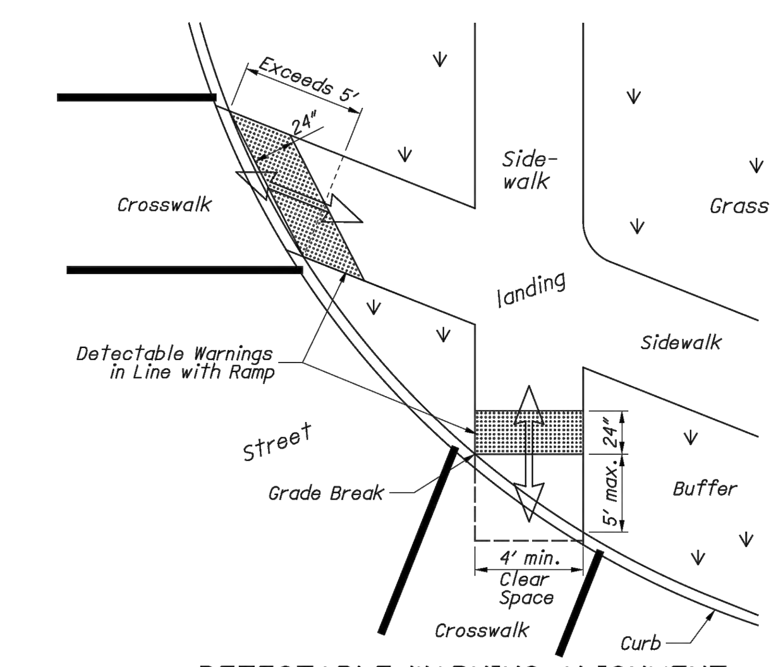
SECTION B-B — See Sheet 2.

SECTION C-C — See Sheet 2.

SECTION D-D — See Sheet 2.

*Where possible, pour ramp area integral with the curb, otherwise use 6" thick walk.

DETAIL A



DETECTABLE WARNING ALIGNMENT

DETECTABLE WARNINGS NOTES

GENERAL: Detectable Warnings are a distinctive surface pattern of truncated domes which are detectable by cane or underfoot to alert people with vision impairments of their approach to streets and hazardous drop-offs.

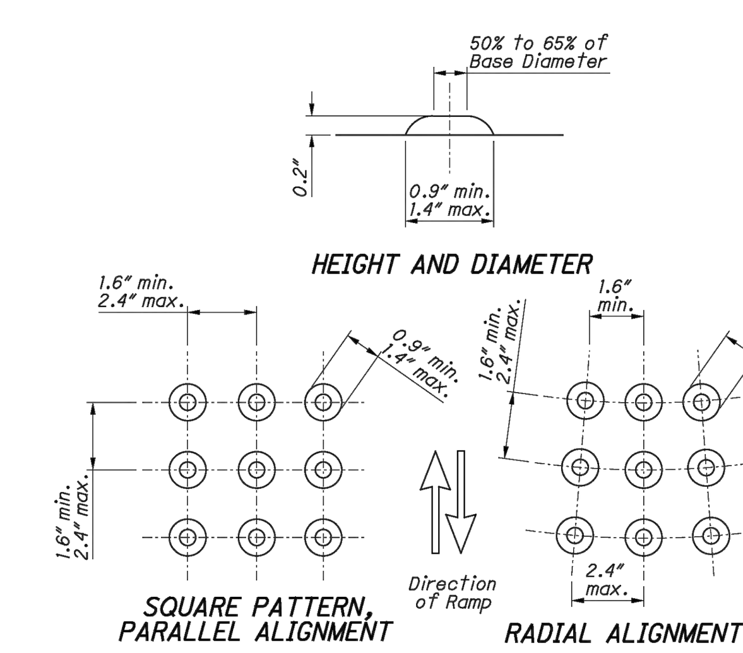
PLACEMENT: Detectable warnings are to be installed at any location where pedestrians might cross paths with vehicular traffic lanes, such as the base of curb ramps or at blended curbs. A 24" strip of domes is to be installed for the full width of the ramp or walk. Typical street corner placement locations are shown on Sheet 1.

Some detectable warning products require a concrete border for proper installation. The concrete border should not exceed 2". Where the back of curb edge is tooled to provide a radius, the border dimension should be measured from the end of the radius.

The depth of concrete underneath detectable warning products shall be a minimum of 4". See DETAIL A.

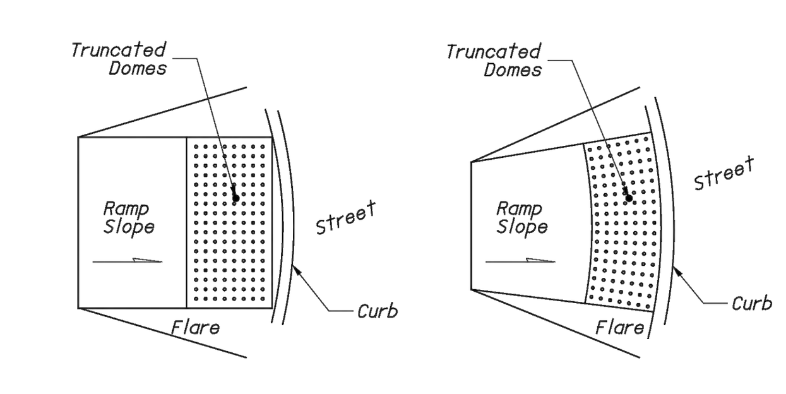
ALIGNMENT: Truncated domes should be aligned with the primary direction of the ramp as shown on the DETECTABLE WARNING ALIGNMENT Detail. Normally the detectable warnings should be flush with the back of the curb, but for skewed conditions see DETECTABLE WARNING ALIGNMENT Detail. For non-standard layouts, detectable warning materials may have to be mitered and placed segmentally.

PRODUCTS & COLORS: Color of the detectable warnings should contrast with surrounding concrete walk and ramp. Black is not an acceptable color. Approved products and guidance on color may be found on the Office of Roadway Engineering Service's Detectable Warnings Approved List. Install products as per manufacturer's printed instructions.



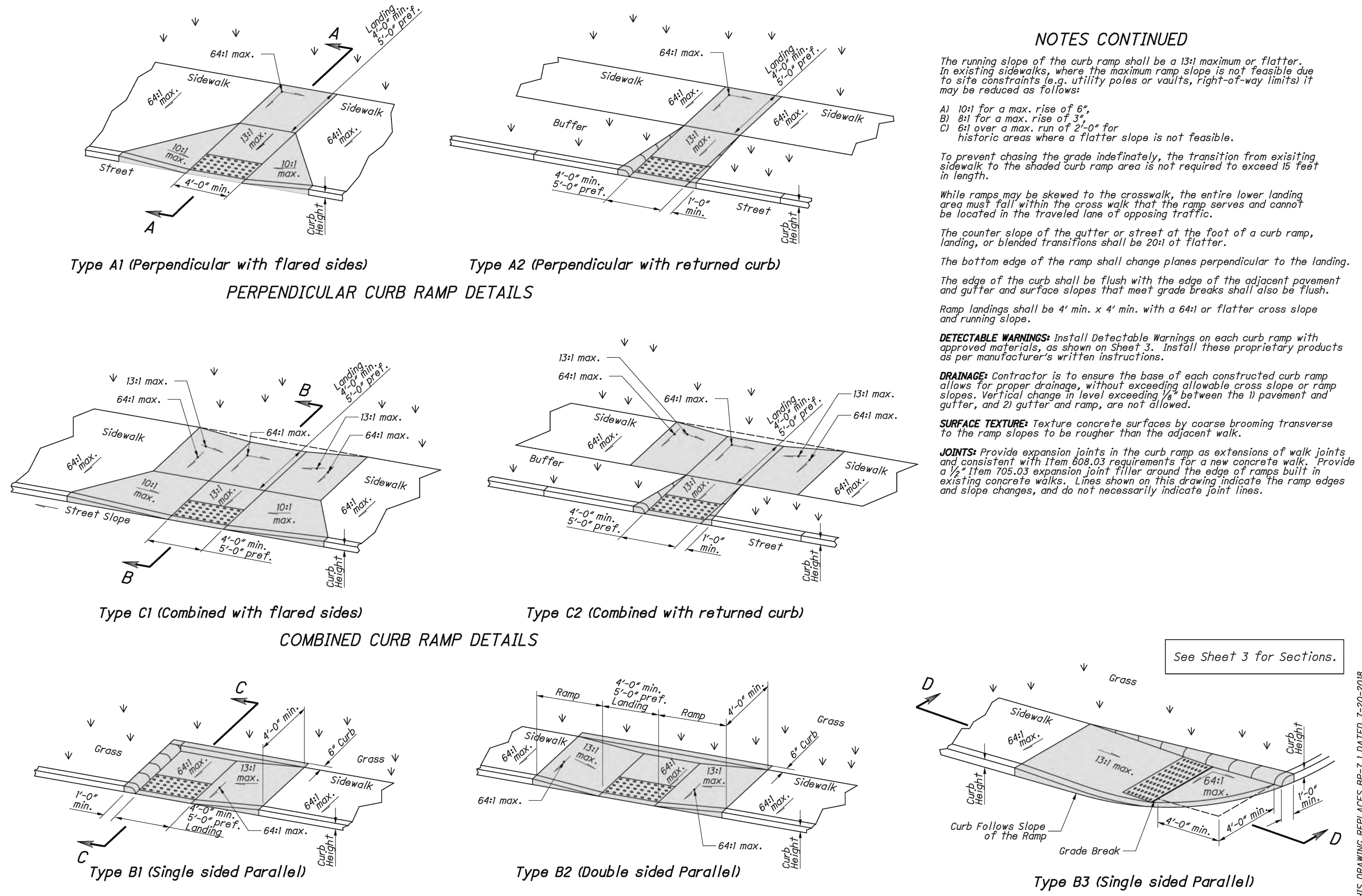
HEIGHT AND DIAMETER — SQUARE PATTERN, PARALLEL ALIGNMENT — RADIAL ALIGNMENT

TRUNCATED DOMES DETAILS



DOME ALIGNMENT ON RADIUSED CURB

OFFICE OF ROADWAY ENGINEERING — NEW CURB RAMPS (with Detectable Warnings) — BP-7.1 — 7-17-2020 — Brenton Bogard — D. Fisher — THIS DRAWING REPLACES BP-7.1 DATED 7-20-2018. — 3/3



Type A1 (Perpendicular with flared sides) — Type A2 (Perpendicular with returned curb)

PERPENDICULAR CURB RAMP DETAILS

Type C1 (Combined with flared sides) — Type C2 (Combined with returned curb)

COMBINED CURB RAMP DETAILS

See Sheet 3 for Sections.

Type B1 (Single sided Parallel) — Type B2 (Double sided Parallel) — Type B3 (Single sided Parallel)

PARALLEL CURB RAMP DETAILS

NOTES CONTINUED

The running slope of the curb ramp shall be a 13:1 maximum or flatter. In existing sidewalks, where the maximum ramp slope is not feasible due to site constraints (e.g. utility poles or vaults, right-of-way limits) it may be reduced as follows:

A) 10:1 for a max. rise of 6",
B) 8:1 for a max. rise of 3",
C) 6:1 over a max. run of 2'-0" for historic areas where a flatter slope is not feasible.

To prevent chasing the grade indefinately, the transition from exisiting sidewalk to the shaded curb ramp area is not required to exceed 15 feet in length.

While ramps may be skewed to the crosswalk, the entire lower landing area must fall within the cross walk that the ramp serves and cannot be located in the traveled lane of opposing traffic.

The counter slope of the gutter or street at the foot of a curb ramp, landing, or blended transitions shall be 20:1 ot flatter.

The bottom edge of the ramp shall change planes perpendicular to the landing.

The edge of the curb shall be flush with the edge of the adjacent pavement and gutter and surface slopes that meet grade breaks shall also be flush.

Ramp landings shall be 4' min. x 4' min. with a 64:1 or flatter cross slope and running slope.

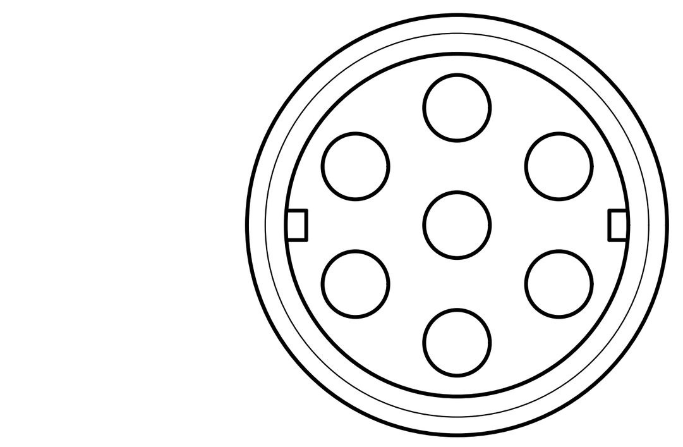
DETECTABLE WARNINGS: Install Detectable Warnings on each curb ramp with approved materials, as shown on Sheet 3. Install these proprietary products as per manufacturer's written instructions.

DRAINAGE: Contractor is to ensure the base of each constructed curb ramp allows for proper drainage, without exceeding allowable cross slope or ramp slopes. Vertical change in level exceeding 1/8" between the 1) pavement and gutter, and 2) gutter and ramp, are not allowed.

SURFACE TEXTURE: Texture concrete surfaces by coarse brooming transverse to the ramp slopes to be rougher than the adjacent walk.

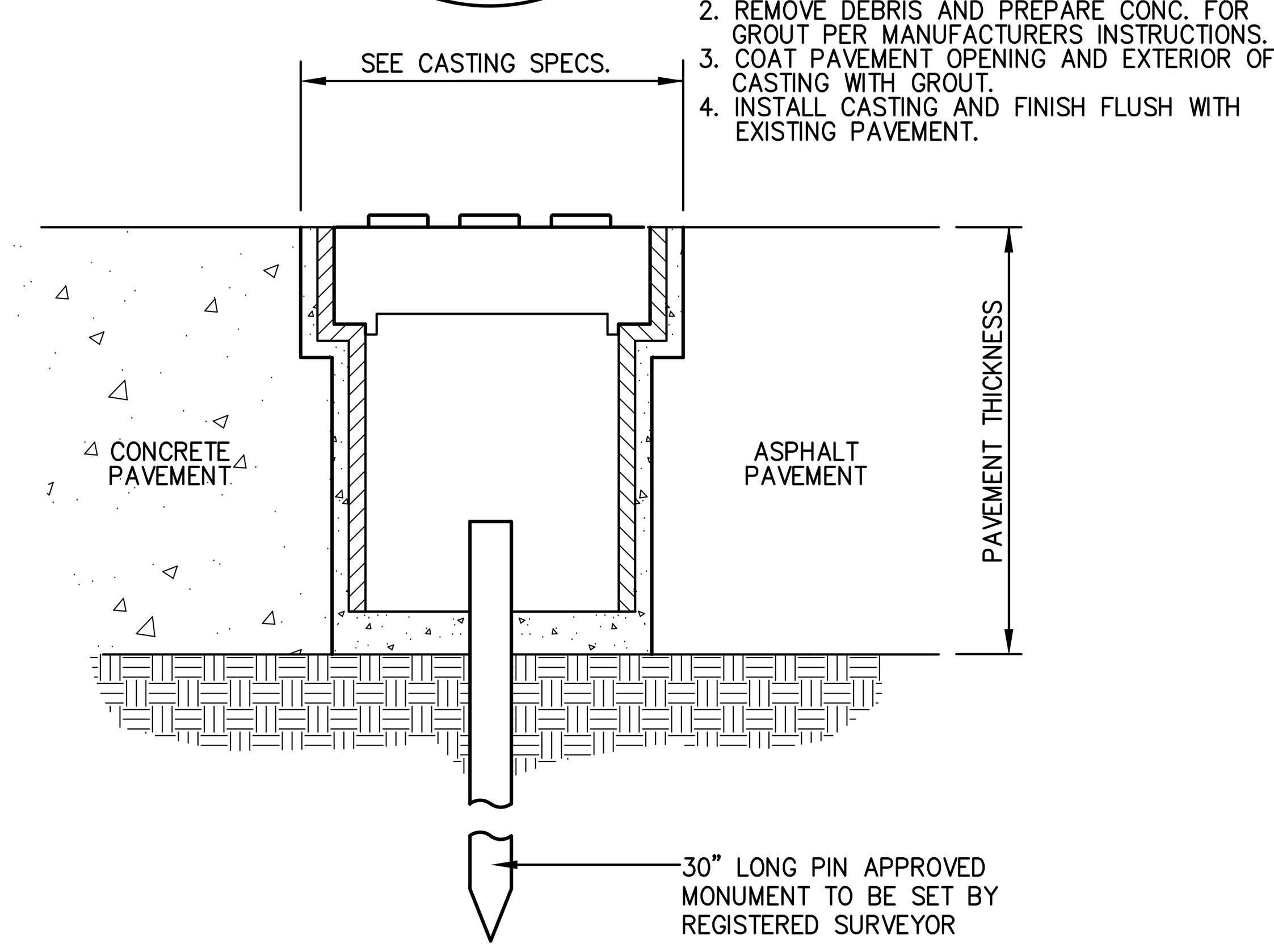
JOINTS: Provide expansion joints in the curb ramp as extensions of walk joints and consistent with Item 608.03 requirements for a new concrete walk. Provide a 1/2" Item 705.03 expansion joint filler around the edge of ramps built in existing concrete walks. Lines shown on this drawing indicate the ramp edges and slope changes, and do not necessarily indicate joint lines.

OFFICE OF ROADWAY ENGINEERING — NEW CURB RAMPS (with Detectable Warnings) — BP-7.1 — 7-17-2020 — Brenton Bogard — D. Fisher — THIS DRAWING REPLACES BP-7.1 DATED 7-20-2018. — 2/3



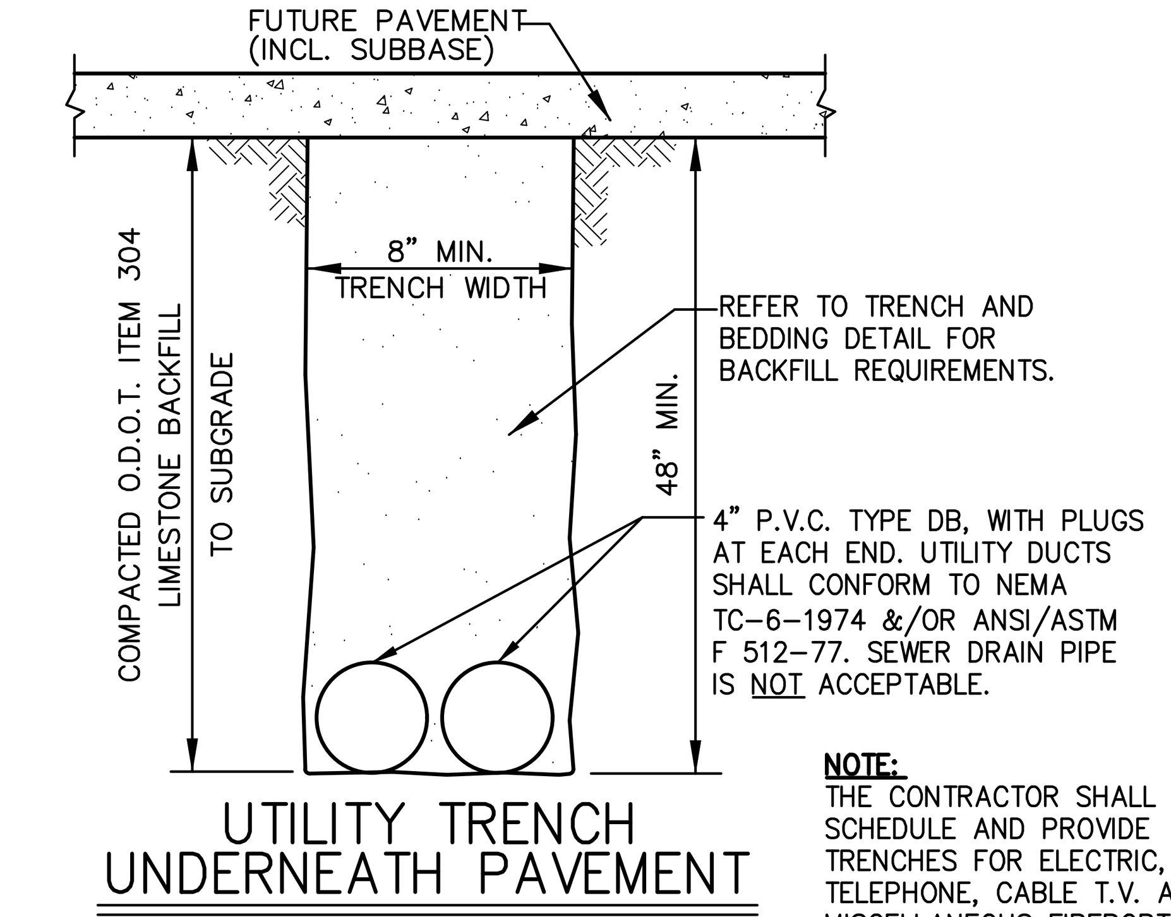
NOTE:
1. MONUMENT BOX CASTING TO BE EJIW #2960 WITH SPECIAL ORDER LID OR APPROVED EQUAL.
2. ANNULAR SPACE BETWEEN CASTING AND PAVEMENT TO BE FILLED WITH NON-SHRINK GROUT PER ODOT 705.20
3. FOR MONUMENT BOXES NOT IN PAVEMENT USE NEENAH 1978A OR E.J.I.W. 8365 CASTING OR EQUAL WITH 3/4" DIA. X 36"IRON PIN

INSTALLATION:
1. CORE BOTH OPENINGS IN PAVEMENT.
2. REMOVE DEBRIS AND PREPARE CONC. FOR GROUT PER MANUFACTURERS INSTRUCTIONS.
3. COAT PAVEMENT OPENING AND EXTERIOR OF CASTING WITH GROUT.
4. INSTALL CASTING AND FINISH FLUSH WITH EXISTING PAVEMENT.



MONUMENT BOX DETAIL (FOR PRIVATE STREETS)
NOT TO SCALE

NOTES:
1. CONTRACTOR SHALL SCHEDULE TRENCHING WITH ELECTRIC, TELEPHONE, CABLE T.V. AND ANY OTHER UNDERGROUND UTILITY.
2. ALL DUCTS SHALL BE EXTENDED TO 5' BEYOND THE EDGE OF PAVEMENT.
3. "CLEAN FILL" IS DEFINED AS BEING FREE OF ROCK, SHALE OR OTHER FOREIGN SUBSTANCE.
4. ANY PIPES CROSSED WITH LESS THAN 18" CLEARANCE SHALL REQUIRE CONCRETE ENCASEMENT OR USE OF DUCTILE IRON PIPE. LOCATIONS REQUIRING THIS PROTECTION ARE SO INDICATED ON THE PLANS.



UTILITY TRENCH UNDERNEATH PAVEMENT
NOT TO SCALE

NOTE:
THE CONTRACTOR SHALL SCHEDULE AND PROVIDE TRENCHES FOR ELECTRIC, TELEPHONE, CABLE T.V. AND MISCELLANEOUS FIBEROPTICS.

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION

MISCELLANEOUS DETAIL

CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

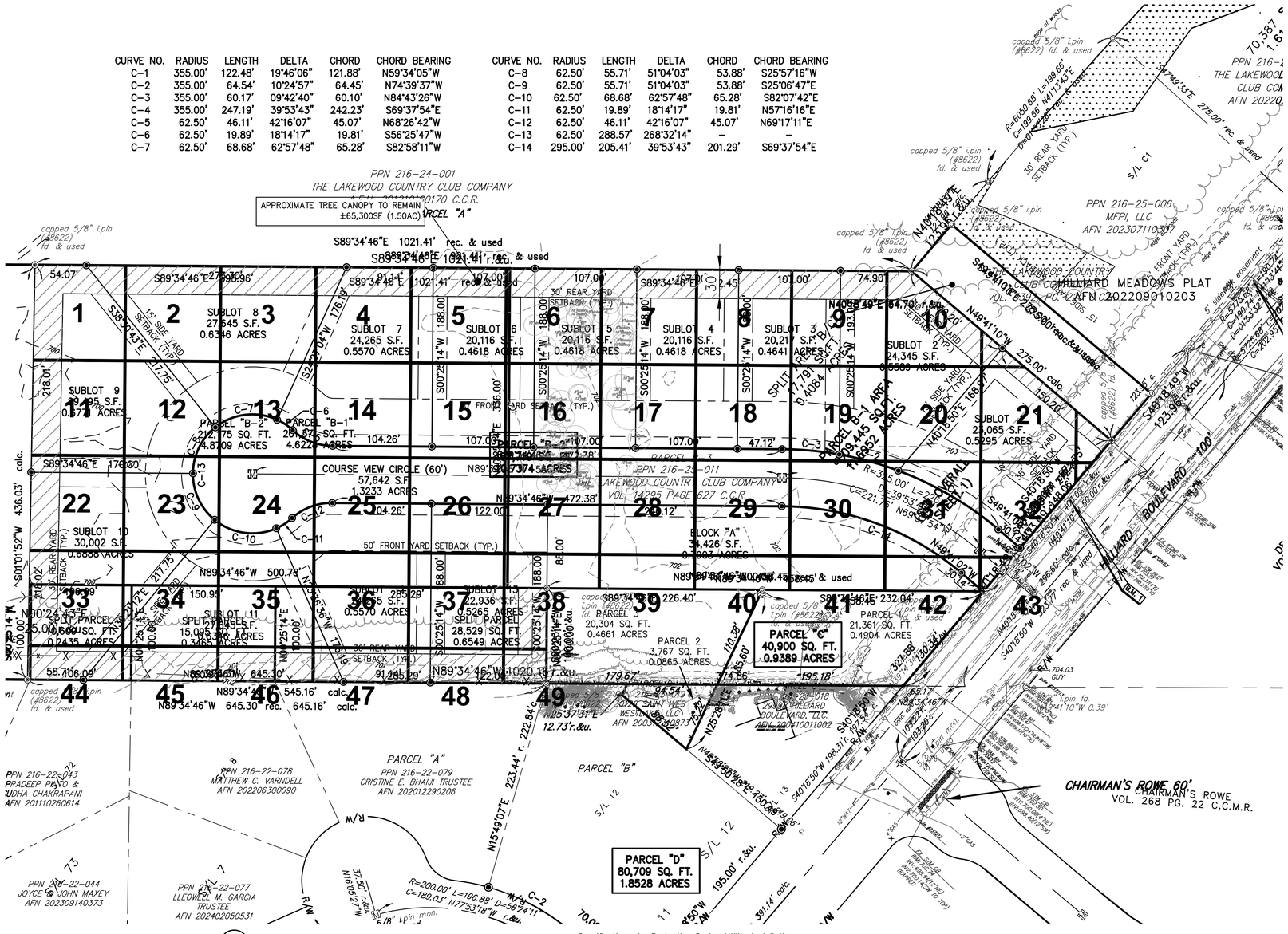
REV NO	DATE	DESCRIPTION
	04-27-26	PERMIT SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

SHEET NO. C7.9

CURVE NO.	RADIUS	LENGTH	DELTA	CHORD	CHORD BEARING
C–1	355.00'	122.48'	19°46'06"	121.88'	N59°34'05"W
C–2	355.00'	64.54'	10°24'57"	64.45'	N74°39'37"W
C–3	355.00'	60.17'	09°42'40"	60.10'	N84°43'26"W
C–4	355.00'	247.19'	39°53'43"	242.23'	S69°37'54"E
C–5	62.50'	46.11'	42°16'07"	45.07'	N68°26'42"W
C–6	62.50'	19.89'	18°14'17"	19.81'	S56°25'47"W
C–7	62.50'	68.68'	62°57'48"	65.28'	S82°58'11"W

CURVE NO.	RADIUS	LENGTH	DELTA	CHORD	CHORD BEARING
C–8	62.50'	55.71'	51°04'03"	53.88'	S25°57'16"W
C–9	62.50'	55.71'	51°04'03"	53.88'	S25°06'47"E
C–10	62.50'	68.68'	62°57'48"	65.28'	S82°07'42"E
C–11	62.50'	19.89'	18°14'17"	19.81'	N57°16'16"E
C–12	62.50'	46.11'	42°16'07"	45.07'	N69°17'11"E
C–13	62.50'	288.57'	268°32'14"	–	–
C–14	295.00'	205.41'	39°53'43"	201.29'	S69°37'54"E

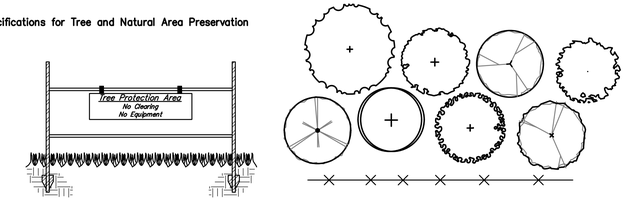


Tree and Natural Area Preservation (TNP)

Description

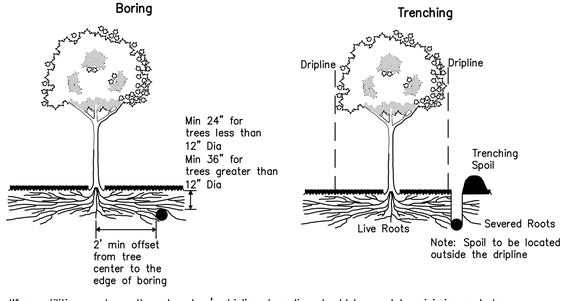
Tree and natural area preservation insures that important vegetated areas existing on–site prior to development will survive the construction process. Tree protection areas prevent the losses and damages to trees that are common as a result of construction. This practice is useful to protect individual trees, and areas of forest or natural vegetation in stream corridors, or open space.

Specifications for Tree and Natural Area Preservation



1. Tree and natural area preservation shall be fenced prior to beginning clearing operations.
2. Fence materials shall be metal fence posts with two strands of high tensile wire, plastic fence or snow fence.
3. Signage shall clearly identify the tree and natural preservation area and state that no clearing or equipment is allowed within it.
4. Fence shall be placed as shown on plans and beyond the drip line or canopy of trees to be protected.
5. If any clearing is done around specimen trees it shall be done by cutting at ground level with hand held tools and shall not be grubbed or pulled out. No clearing shall be done in buffer strips or other preserved forested areas.
7. No filling or stockpiling of materials shall occur within the tree protection area, including deposition of sediment.

Specifications for Protection During Utility Installation



1. Where utilities must run through a tree's dripline, tunneling should be used to minimize root damage. Tunneling should be performed at a minimum depth of 24 inches for trees less than 12 inches in diameter or at a minimum depth of 36 inches for larger diameter trees.
2. Where tunneling will be performed within the dripline of a tree, the tunnel should be placed a minimum of 2 feet away from the tree trunk to avoid taproots.
3. Minimize excavation or trenching within the dripline of the tree. Route trenches around the dripline of trees.
4. Roots two inches or larger that are severed by trenching should be sawn off neatly in order to encourage new growth and discourage decay.
5. Soil excavated during trenching shall be piled on the side away from the tree.
6. Roots shall be kept moist while trenches are open and refilled immediately after utilities are installed or repaired.

TREE REMOVAL NOTES

1. *MARKING OF TREES TO BE REMOVED: ALL TREES TO BE REMOVED SHALL BE CLEARLY FLAGGED. NOTIFY OWNER WHEN TREES HAVE BEEN FLAGGED FOR INSPECTION AND APPROVAL PRIOR TO STARTING CLEARING ACTIVITIES.
2. ALL TREES ARE TO BE REMOVED COMPLETE WITHIN LIMITS OF WORK/DISTURBANCE AS INDICATED ON THIS SHEET.
3. PRIOR TO ANY CONSTRUCTION OR GRADING, A PROTECTIVE BARRIER, FENCE, POST AND/ OR SIGNS CLEARLY INDICATING LIMITS OF WORK/DISTURBANCE SHALL BE INSTALLED INDICATING NO TREE REMOVAL OR DISTURBANCE OUTSIDE LIMITS. THE CITY/OWNER SHALL BE CONTACTED UPON DETERMINATION OF LIMITS IN THE FIELD. APPROVAL SHALL BE GRANTED PRIOR TO APPLYING FOR A CLEARING PERMIT.
4. NO BUILDING MATERIAL, EQUIPMENT, VEHICLES OR CHEMICALS SHALL BE STORED OR PLACED OUTSIDE LIMITS OF WORK/DISTURBANCE.
5. NO WIRES, BOARDS, NAILS, SIGNS, FENCES OR OTHER ATTACHMENT SHALL BE ATTACHED TO A TREE TO BE PRESERVED.
6. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL TREE PERMITS REQUIRED BY THE CITY.

PROPOSED TREE DATA

REQUIRED (CODE)	PROPOSED
TOTAL CALIPER OF TREES 9.33 acres X 100 = 933 CAL. (SITE AREA)	1,500 CAL. EXISTING TREES 4" CAL. AND 5' HT. OR GREATER (1.50 acres X 1,000 = 1,500 CAL.) ADDITIONAL TREES PROPOSED. SEE LANDSCAPE PLAN.

SITE DATA & LEGEND

APPROXIMATE TREE CANOPY TO REMAIN
16% OF TOTAL SITE
(WITH PRELIMINARY GRADING)

TREE PRESERVATION NOTE

AS THE PRELIMINARY PLAN SHOWS, THE SITE DESIGN WILL PRESERVE ±16% OF THE EXISTING TREE CANOPY VIA A ~30' BUFFER.

REV NO	DATE	DESCRIPTION
	04–27–26	PERMIT SET
	10–17–25	CITY PLANNING DEPT. REVIEW
	10–03–25	OWNER SET

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14523E-C	KMK	GHW	14523E

SCALE
1 INCH = 60 FEET
24 x 36
SHEETS ONLY

THE LAKEWOOD COUNTRY CLUB COMPANY - THE GREENS SUBDIVISION
CITY OF WESTLAKE, COUNTY OF CUYAHOGA, STATE OF OHIO

TREE PRESERVATION PLAN

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