

DESCRIPTION OF PROPERTY SURVEYED

(Per Schedule A of the Owners Policy OX12633839, File No. 1811-1298-BF, issued by Liberty Title, Inc. as agent for Old Republic National Title Insurance Company, effective date January 8, 2019.)

The South 656.60 feet of the East 284.93 feet of the Northwest Quarter of the Southwest Quarter of Section 36, Township 120, Range 24, except the South 33 feet, Wright County, Minnesota

SURVEY REPORT

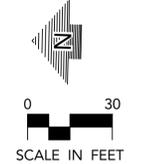
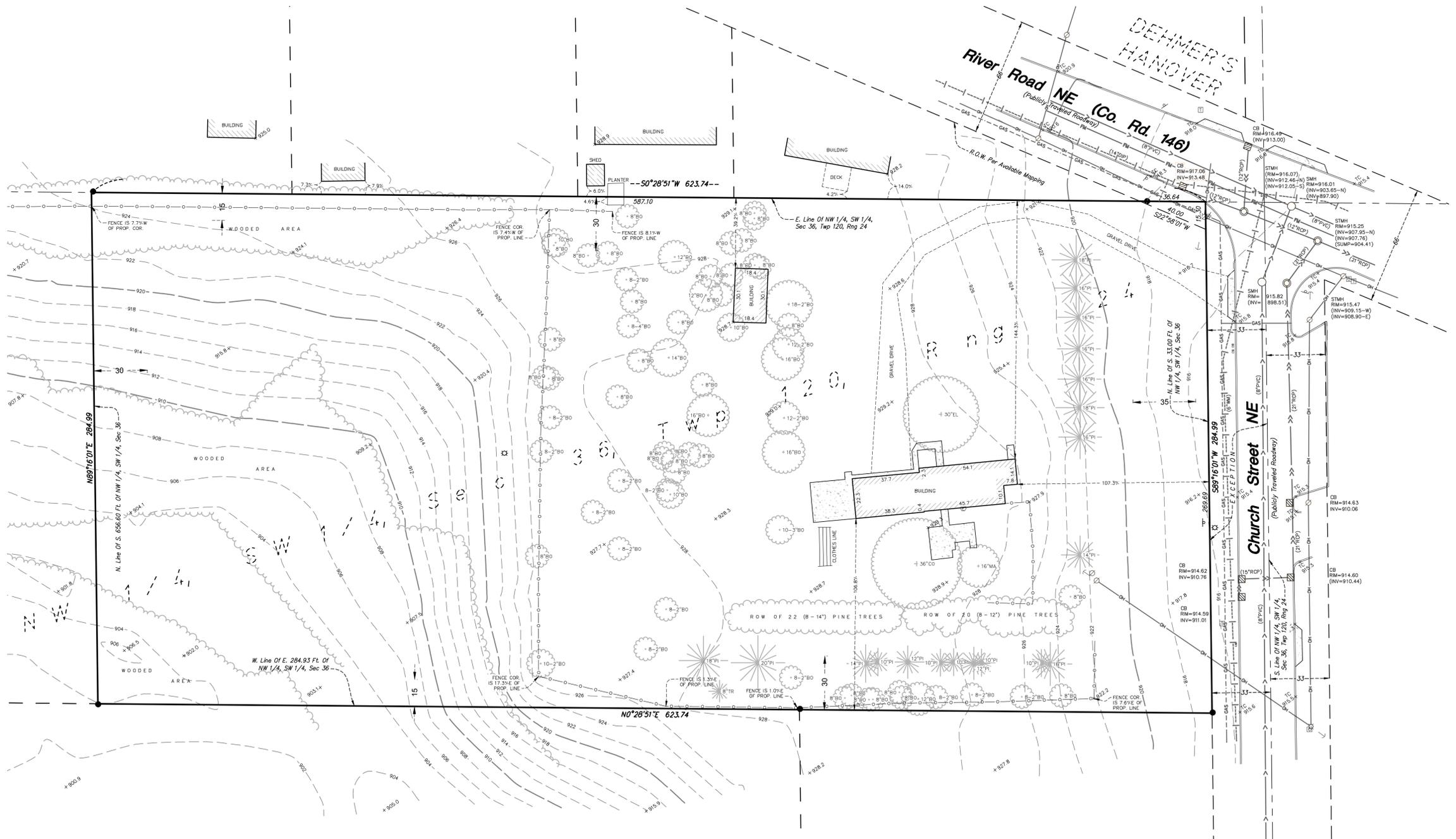
- The Surveyor was not provided utility easement documents for the subject property except for those shown on the Survey. The location of River Road NE shown hereon, is per available mapping.
- The address, if disclosed in documents provided to or obtained by the surveyor, or observed while conducting the fieldwork is 11216 Church Street NE, Hanover, MN 55341.
- The bearings for this survey are based on the Wright County Coordinate System NAD 83 (1986 Adjust).
- Benchmark: MnDOT Concrete Monument - ESTERLY 2
2.5 miles southeast of Saint Michael; 1.5 miles south along Labeaux Ave NE from junction of Labeaux Ave NE & 30th St NE in Saint Michael, then 0.35 mile west on 15th St NE to driveway to house number 10621; in garden on right; 181 feet south of road; 76.22 feet south-southeast of reference mark 6; 65.25 feet north-northwest of reference mark 5; 57.0 feet west of the northwest corner of a metal building; 3.5 feet northeast of witness post.
Elevation = 1026.51 Feet (NGVD'29)

Site Benchmark:
Top nut of hydrant located at intersection of Church St NE & River Road NE, as shown hereon.
Elevation = 920.32 Feet (NGVD'29)
- This property is contained in Zone X (areas determined to be outside the 0.2% annual chance floodplain) per Flood Insurance Rate Map No. 27053C0016F, Community Panel No. 270540 0016 F, effective date of November 4, 2016 and Flood Insurance Rate Map No. 27053C0018F, Community Panel No. 270540 0018 F, effective date of November 4, 2016.
- The field work was completed on April 19, 2005.

- The wetlands information on this plan was provided and delineated by Pinnacle Engineering, dated October 7, 2003. (NO wetlands on site)
- Individual trees as shown are measured diameter in inches at breast height (DBH) in 2005.
- We have shown underground utilities on and/or serving the surveyed property per Gopher State One-Call Ticket No's 190430195 and 190430197. The following utilities and municipalities were notified:

COMCAST (800)778-9140
CENTURYLINK (855)742-6062
XCEL ENERGY (800)848-7558

VEOLIA WATER (763)497-3611
CENTER POINT ENERGY (608)223-2014
ZAYO BANDWIDTH (888)267-1063
- Utility operators do not consistently respond to locate requests through the Gopher State One Call service for surveying purposes such as this. Those utility operators that do respond, often will not locate utilities from their main line to the customer's structure or facility. They consider those utilities "private" installations that are outside their jurisdiction. These "private" utilities on the surveyed property or adjoining properties, may not be located since most operators will not mark such "private" utilities. A private utility locator may be contacted to investigate these utilities further, if requested by the client.
- The locations of underground utility lines shown hereon is an approximation based on available maps, unless otherwise noted on the survey.
- Maps provided by those notified above, either along with a field location or in lieu of such a location, are very often inaccurate or inconclusive. **EXTREME CAUTION MUST BE EXERCISED BEFORE AN EXCAVATION TAKES PLACE ON OR NEAR THIS SITE. BEFORE DIGGING, YOU ARE REQUIRED BY LAW TO NOTIFY GOPHER STATE ONE CALL AT LEAST 48 HOURS IN ADVANCE AT 811 or (651) 454-0002.**



SURVEY LEGEND

- FOUND OPEN IRON MONUMENT UNLESS SHOWN OTHERWISE
- SET 1/2 INCH X 14 INCH IRON MONUMENT, MARKED "LS 48988"
- △ SET NAIL
- (INFO) INFORMATION AS SHOWN ON PLAN - NOT FIELD VERIFIED
- S --- STORM SEWER
- SS --- SANITARY SEWER
- W --- WATER MAIN - MAPPED
- WS --- SANITARY SEWER SERVICE
- W --- WATER SERVICE
- FM --- FORCE MAIN - MAPPED
- CTV --- UG CABLE TV - MAPPED
- ELE --- UG ELECTRIC - MAPPED
- GAS --- UG GAS - MAPPED
- TEL --- UG TELEPHONE - MAPPED
- OH --- OVERHEAD UTILITY
- X --- BARBED WIRE FENCE
- ○ --- CHAIN LINK FENCE
- --- CONCRETE CURB
- --- CONCRETE
- --- CONTOUR
- --- TREE LINE
- --- CONIFEROUS TREE
- --- DECIDUOUS TREE
- --- CATCH BASIN
- --- STORM MANHOLE
- --- SANITARY MANHOLE
- --- HYDRANT
- --- GATE VALVE
- --- LIGHT POLE
- --- POWER POLE
- --- CABLE TV PEDESTAL
- --- ELECTRIC METER
- --- GUY WIRE
- --- MAILBOX
- --- SIGN
- --- TELEPHONE PEDESTAL
- --- BOXELDER
- --- COTTONWOOD
- --- ELM
- --- MAPLE
- --- PINE
- --- TREE (GENERAL)
- --- CURB CUT
- --- TOP OF CURB
- --- TH50 ELEV @ THRESHOLD
- --- TNH TOP NUT HYDRANT
- --- 972.5 SPOT ELEVATION
- 12 SCHEDULE B II ITEM

RIVER TOWN VILLAS OF HANOVER

11218 CHURCH STREET NE
HANOVER, MN 55341

WITS REALTY

1010 W. LAKE STREET
SUITE 200
MINNEAPOLIS, MN 55408

LOUCKS

PLANNING
CIVIL ENGINEERING
LAND SURVEYING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL

7200 Hemlock Lane, Suite 300
Maple Grove, MN 55369
763.424.5505
www.loucksinc.com

CADD QUALIFICATION

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SUBMITTAL/REVISIONS

02/22/19 PRELIMINARY SUBMITTAL

PROFESSIONAL SIGNATURE

I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Henry D. Nelson
Henry D. Nelson, L.S.
License No. 17255
Date 2/22/19

QUALITY CONTROL

Loucks Project No. 03128A
Project Lead HDN
Drawn By SFM
Checked By HDN
Field Crew VN/UT

SHEET INDEX

C1-1 EXISTING CONDITIONS
C1-2 PRELIMINARY PLAT
C2-1 SITE PLAN
C3-1 GRADING PLAN
C3-2 - C3-3 SWPPP PLAN & NOTES
C4-1 UTILITY PLAN
C8-1 - C8-2 CIVIL DETAILS
L1-1 LANDSCAPE PLAN
L2-2 TREE INVENTORY PLAN

EXISTING CONDITIONS

C1-1

Preliminary Plat Of: RIVER TOWN VILLAS OF HANOVER

LEGAL DESCRIPTION

The South 656.60 feet of the East 284.93 feet of the Northwest Quarter of Section 36, Township 120, Range 24, except the South 33 feet, Wright County, Minnesota

SITE DATA

AREAS
 Lots 1 through 18 (3,500 +/- sq. ft.) = 63,000 +/- square feet or 1.45 +/- acres
 Lot 19 = 112,247 +/- square feet or 2.57 +/- acres
 Right of Way Dedication Area = 2,475 +/- square feet or 0.06 +/- acres
 Total Property Area = 177,722 +/- square feet or 4.08 +/- acres

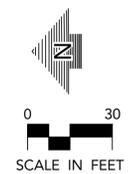
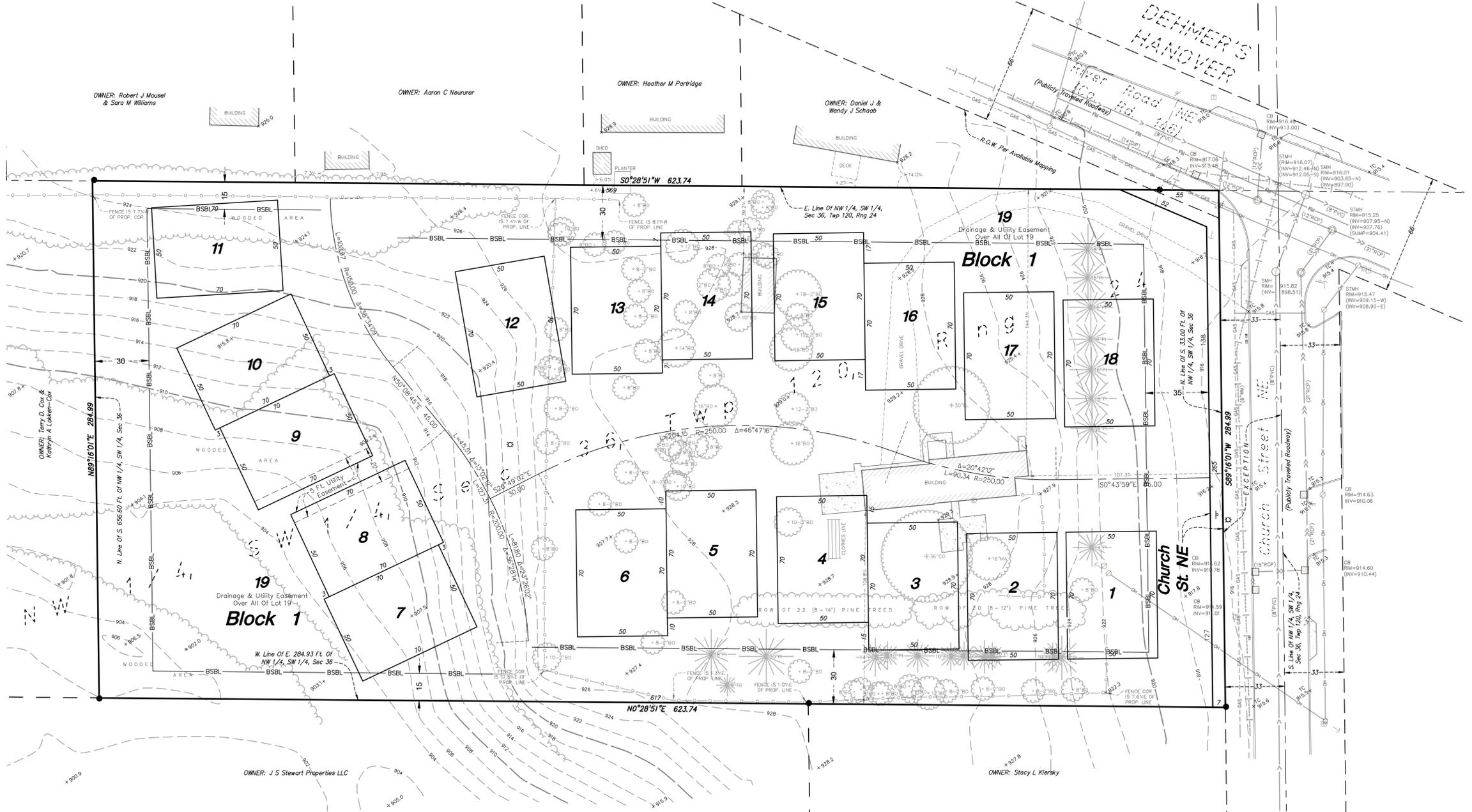
GENERAL NOTES

- SURVEYOR:**
 Loucks
 7200 Hemlock Lane, Suite 300
 Maple Grove, MN 55330
 763-424-5505
- OWNER/DEVELOPER:**
 Wits Realty
 1010 W. Lake Street, Suite 200
 Minneapolis, MN 55408
 612-656-9487
- Prepared February 2019.
 - The address, if disclosed in documents provided to or obtained by the surveyor, or observed while conducting the fieldwork is 11218 Church Street NE, Hanover, MN 55341.
 - The bearings for this survey are based on the Wright County Coordinate System NAD 83 (1986 Adjust).
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ZONING INFORMATION

Current Zoning: B1-A (Downtown River District)
 Any zoning classification, setback requirements, height and floor space area restrictions, and parking requirements, shown hereon, was researched to the best of our ability and is open to interpretation. Per the City of Hanover Zoning Map and City Code, on February 14, 2019, information for the subject property is as follows:

- Current Setbacks:
 Front 30 feet (20 feet on River Road & Main Street)
 Side 0 feet
 Rear 0 feet
 Height 2-1/2 Stories or 35 feet
- Proposed Zoning: R1-A (Single Family Residential) with PUD (Planned Unit Development)
- Proposed Setbacks:
 Front 20 feet
 Side 15 feet (5 ft Garage/10 ft House)
 Rear 30 feet
 Church St NE 35 feet



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Henry D. Nelson
 Henry D. Nelson - PLS
 License No. 17255
 Date

QUALITY CONTROL

Loucks Project No. 03-128A
 Project Lead HDN
 Drawn By SFM
 Checked By HDN
 Field Crew VN/JT

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- C1-2 PRELIMINARY PLAT
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- C3-1 GRADING PLAN
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PRELIMINARY PLAT
C1-2

RIVER TOWN VILLAS OF HANOVER
 11218 CHURCH STREET NE
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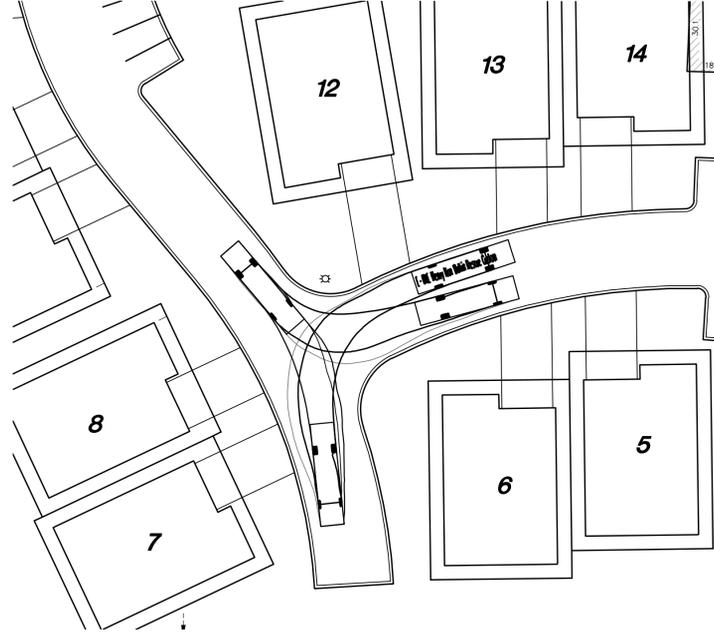
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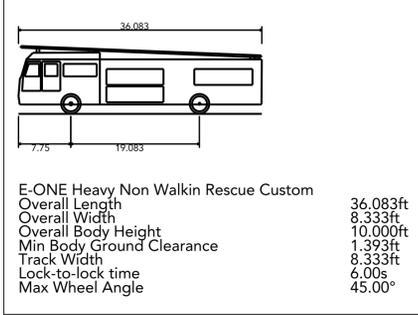
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Plotted: 02/21/2019 9:57 AM W:\2003\03128A\CADD DATA\SURVEY_dwg Sheet Files\03128A_PrelPlat

FIRE TRUCK TURNING MOVEMENTS



MOVEMENTS BASED ON A 36' LONG TRUCK



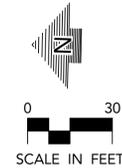
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 Total Property Area = 177,722 +/- square feet or 4.08 +/- acres

ZONING INFORMATION

Current Zoning: B1-A (Downtown River District)
 Proposed Zoning: R-1A with PUD Overlay (Planned Unit Development)

Minimum Setbacks:
 Building Side = 15 feet
 Building Rear = 30 feet
 Building (Church Street NE) = 35 feet
 Building Front To Curb = 20 feet
 Garage Front To Curb = 25 feet
 Garage to Garage = 10 feet
 Garage to Building = 15 feet



**RIVER TOWN
 VILLAS OF
 HANOVER**
 11218 CHURCH STREET NE
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 Todd W. McLouth - PE
 License No. 20383
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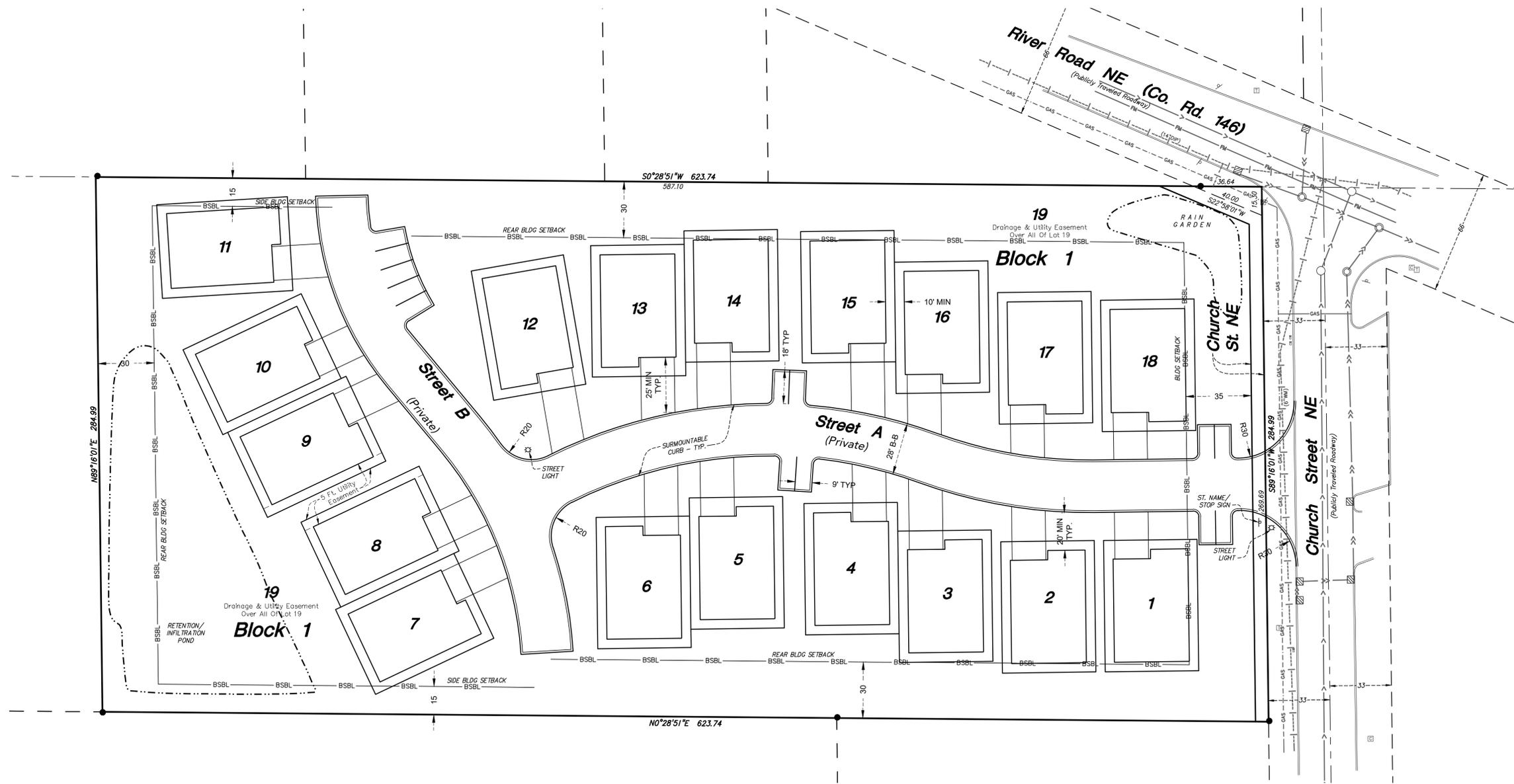
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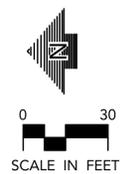
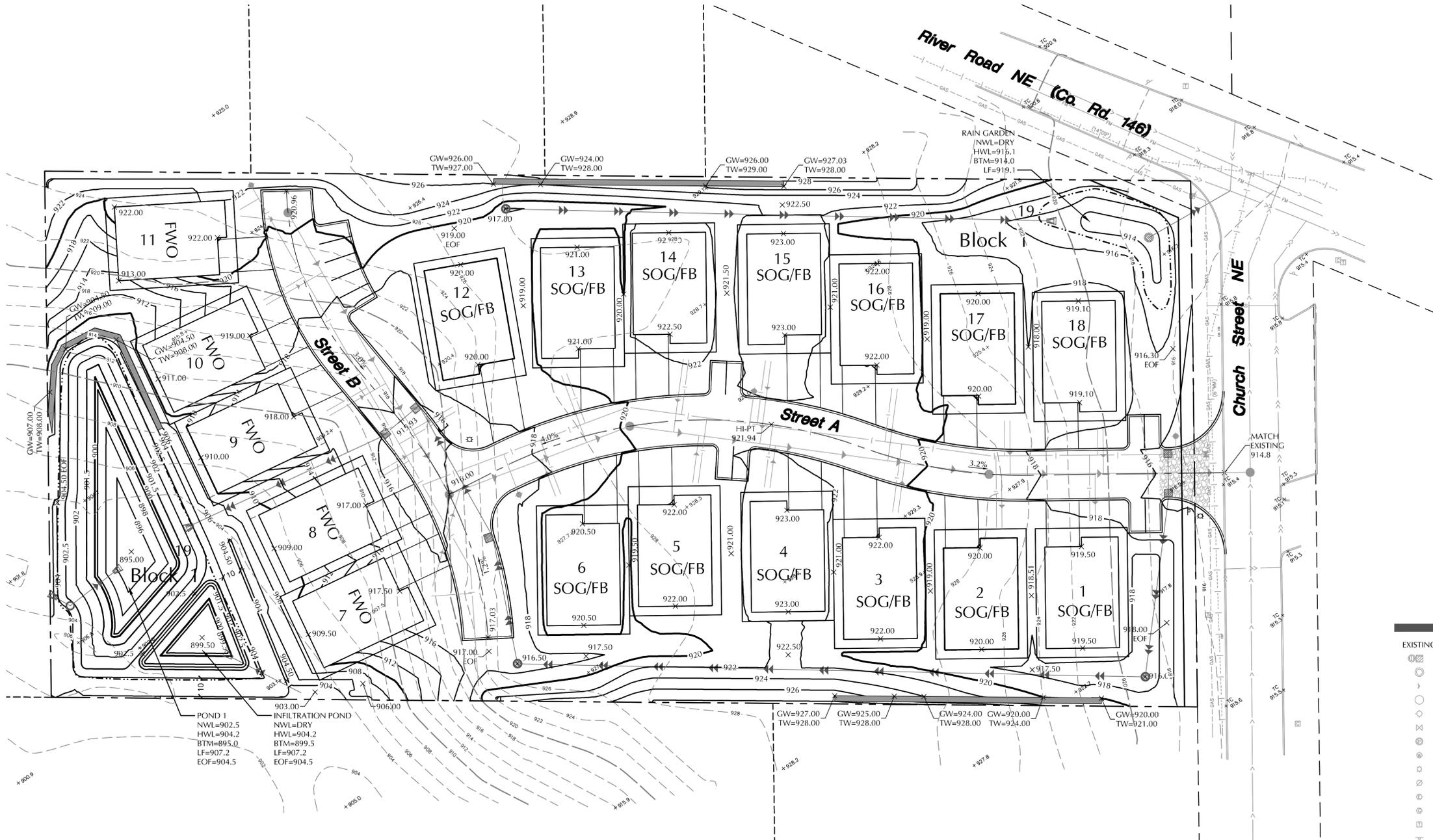
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**SITE PLAN
 C2-1**

Plotted: 02/21/2019 1:20 PM W:\2003\03128A\CADD DATA\CIVIL.dwg Sheet: File:C2-1 SITE PLAN





LEGEND	
EXISTING	PROPOSED

GRADING, DRAINAGE & EROSION CONTROL NOTES

- ALL DISTURBED UNPAVED AREAS ARE TO RECEIVE MINIMUM OF 6 INCHES OF TOP SOIL AND SOD OR SEED. THESE AREAS SHALL BE WATERED BY THE CONTRACTOR UNTIL THE SOD OR SEED IS GROWING IN A HEALTHY MANNER.
- STABILIZING VEGETATION MUST BE PLACED IN DISTURBED AREAS WITHIN 2 WEEKS OF ROUGH GRADING.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASE OF THIS PROJECT. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGES TO ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASE OF THIS PROJECT.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL DEVICES SUCH AS BARRICADES, WARNING SIGNS, DIRECTIONAL SIGNS, FLAGMEN AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY. PLACEMENT OF THESE DEVICES SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT. TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE APPROPRIATE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARDS.
- IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- THE DUTY OF THE ENGINEER OR THE DEVELOPER TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTORS PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTORS SAFETY MEASURES IN, OR NEAR THE CONSTRUCTION SITE.
- BEFORE BEGINNING CONSTRUCTION THE CONTRACTOR SHALL INSTALL A TEMPORARY ROCK ENTRANCE PAD AT ALL POINTS OF VEHICLE EXIT FROM THE PROJECT SITE. SAID ROCK ENTRANCE PAD SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF THE PROJECT. SEE DETAILS SHOWN ON SHEET C8-1 OF THE PROJECT PLANS.
- EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE ESTABLISHED AROUND THE ENTIRE SITE PERIMETER AND IN ACCORDANCE WITH NPDES PERMIT REQUIREMENTS, BEST MANAGEMENT PRACTICES, CITY REQUIREMENTS AND THE DETAILS SHOWN ON SHEET C8-1 OF THE PROJECT PLANS.
- ALL ENTRANCES AND CONNECTIONS TO CITY STREETS SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND NOTIFICATIONS AS REQUIRED BY THE CITY.
- SEE UTILITY PLAN AND STORM SEWER PROFILES FOR FURTHER DETAIL REGARDING THE STORM SEWER.
- A POST CONSTRUCTION TEST MUST BE DONE ON ALL FILTRATION BASINS. BASINS SHALL BE FILLED TO A MINIMUM DEPTH OF 6 INCHES AND MONITORED FOR TIME TO DRAIN. THE COON CREEK WATERSHED DISTRICT SHALL BE NOTIFIED PRIOR TO THE TEST TO WITNESS THE RESULTS.

PROJECT BENCHMARK

SITE BENCHMARK: TOP NUT OF HYDRANT LOCATED AT INTERSECTION OF CHURCH ST NE & RIVER ROAD NE. ELEVATION = 920.32 FEET (NGVD'29)

CALL BEFORE YOU DIG!
Gopher State One Call
TWIN CITY AREA: 651-454-0002
TOLL FREE: 1-800-252-1166

WARNING:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND / OR RELOCATION OF LINES.
THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

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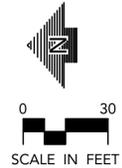
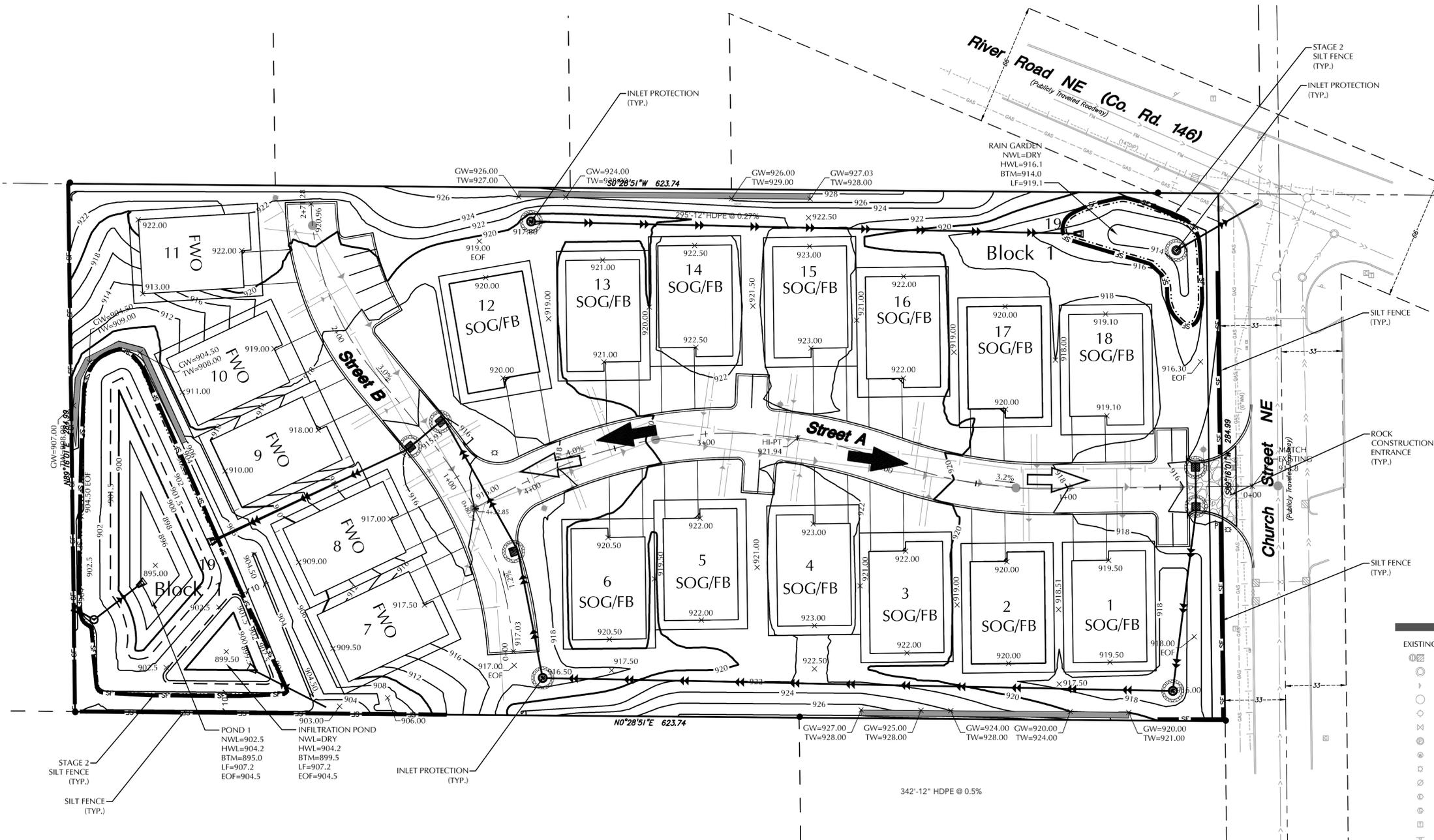
PRELIMINARY
Todd W. McLaugh - PE License No. 20383 Date

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LEGEND	
EXISTING	PROPOSED

SITE PLAN LEGEND	
	SILT FENCE
	BIOROLL
	EXISTING DRAINAGE PATTERN
	PROPOSED DRAINAGE PATTERN
	ROCK CONSTRUCTION ENTRANCE
	INLET PROTECTION
	WOODFIBER BLANKET

NOTE: ALL OTHER DISTURBED AREAS SHALL BE SEEDED & MULCHED

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SHEET INDEX

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SWPPP
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SWPPP NOTES

- PROJECT DESCRIPTION**
THE NATURE OF THIS PROJECT WILL CONSIST OF CONSTRUCTING SINGLE FAMILY RESIDENTIAL LOTS AND HOMES, UTILITIES AND STREETS.
- SEQUENCING OF MAJOR CONSTRUCTION ACTIVITIES ARE AS FOLLOWS:**
 - INSTALL VEHICLE TRACKING BMP
 - INSTALL SILT FENCE AROUND SITE
 - INSTALL PROTECTIVE FENCE AROUND INFILTRATION AREAS
 - CLEAR AND GRUB SITE
 - STRIP AND STOCKPILE TOPSOIL
 - REMOVE PAVEMENTS AND UTILITIES
 - CONSTRUCT STORMWATER MANAGEMENT BASINS
 - INSTALL SILT FENCE AROUND BASINS
 - ROUGH GRADE SITE
 - IMPORT CLEAN FILL FOR REPLACEMENT AND BALANCE
 - INSTALL UTILITIES
 - INSTALL BUILDING FOUNDATIONS
 - INSTALL CURB AND GUTTER
 - INSTALL PAVEMENTS AND WALKS
 - INSTALL SMALL UTILITIES (GAS, PHONE, ELECTRIC, CABLE, ETC.)
 - FINAL GRADE SITE
 - REMOVE ACCUMULATED SEDIMENT FROM BASINS
 - CONSTRUCT INFILTRATION BASIN
 - SEED AND MULCH
 - WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND THE SITE IS STABILIZED, REMOVE SILT FENCE AND RESEED ANY AREAS DISTURBED BY THE REMOVAL.
- SITE DATA:**
 - AREA OF DISTURBANCE: ±4.10 AC
 - PRE-CONSTRUCTION IMPERVIOUS AREA: ±0.00 AC
 - POST-CONSTRUCTION IMPERVIOUS AREA: ±1.67 AC

GENERAL SOIL TYPE: SEE GEOTECHNICAL REPORT IN SPECIFICATIONS
- THE LOCATION OF AREAS NOT TO BE DISTURBED MUST BE IDENTIFIED WITH FLAGS, STAKES, SIGNS, SILT FENCE, ETC. BEFORE CONSTRUCTION BEGINS.
- ALL DISTURBED GROUND LEFT INACTIVE FOR SEVEN (7) OR MORE DAYS SHALL BE STABILIZED BY SEEDING OR SODDING (ONLY AVAILABLE PRIOR TO SEPTEMBER 15) OR BY MULCHING, OR COVERING OR OTHER EQUIVALENT CONTROL MEASURE. AT A RATE OF 1.5 TIMES STANDARD SEEDING/FINAL STABILIZATION TO BE DONE PER LANDSCAPE PLAN, SEE SHEET L1-L.
- ON SLOPES 3:1 OR GREATER MAINTAIN SHEET FLOW AND MINIMIZE RILLS AND/OR GULLIES. SLOPE LENGTHS CAN NOT BE GREATER THAN 75 FEET. ALL 3:1 SLOPES TO BE STABILIZED WITH EROSION CONTROL BLANKET
- ALL STORM DRAINS AND INLETS MUST BE PROTECTED UNTIL ALL SOURCES OF POTENTIAL DISCHARGE ARE STABILIZED.
- TEMPORARY SOIL STOCKPILES MUST HAVE EFFECTIVE SEDIMENT CONTROL AND CAN NOT BE PLACED IN SURFACE WATERS OR STORM WATER CONVEYANCE SYSTEMS. TEMPORARY STOCKPILES WITHOUT SIGNIFICANT AMOUNT OF SILT, CLAY, OR ORGANIC COMPOUNDS ARE EXEMPT EX: CLEAN AGGREGATE STOCK PILES, DEMOLITION CONCRETE STOCKPILES, SAND STOCKPILES.
- SEDIMENT LADEN WATER MUST BE DISCHARGED TO A SEDIMENTATION BASIN WHENEVER POSSIBLE. IF NOT POSSIBLE, IT MUST BE TREATED WITH THE APPROPRIATE BMPS.
- SOLID WASTE MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.
- THE WATERSHED DISTRICT OR THE CITY MAY HAVE REQUIREMENTS FOR INSPECTIONS OR AS-BUILT DRAWINGS VERIFYING PROPER CONSTRUCTION OF THE BMPS.
- THE OWNER WHO SIGNS THE NPDES PERMIT APPLICATION IS A PERMITEE AND IS RESPONSIBLE FOR COMPLIANCE WITH ALL TERMS AND CONDITIONS OF THE PERMIT. THE OPERATOR (CONTRACTOR) WHO SIGNS THE NPDES PERMIT APPLICATION IS A PERMITEE FOR PARTS II.B., PART II.C., PART II.F., PART V., PART IV. AND APPLICABLE CONSTRUCTION ACTIVITY REQUIREMENTS FOUND IN APPENDIX A, PART C. OF THE NPDES PERMIT AND IS JOINTLY RESPONSIBLE WITH THE OWNER FOR COMPLIANCE WITH THOSE PORTIONS OF THE PERMIT.
- TERMINATION OF COVERAGE-PERMITEE(S) WISHING TO TERMINATE COVERAGE MUST SUBMIT A NOTICE OF TERMINATION (NOT) TO THE MPCA. ALL PERMITEES MUST SUBMIT A NOT WITHIN 30 DAYS AFTER ONE OR MORE OF THE FOLLOWING CONDITIONS HAVE BEEN MET:**
 - FINAL STABILIZATION, PER NPDES PERMIT PART IV.G., HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITEE IS RESPONSIBLE.
 - TRANSFER OF OWNERSHIP AS DESCRIBED IN THE PERMIT.
- INSPECTIONS**
 - INITIAL INSPECTION FOLLOWING SILT FENCE INSTALLATION BY CITY REPRESENTATIVE IS REQUIRED.
 - EXPOSED SOIL AREAS: ONCE EVERY 7 DAYS AND WITHIN 24 HOURS FOLLOWING A RAINFALL EVENT GREATER THAN OR EQUAL TO 0.2" IN 24 HOURS.
 - STABILIZED AREAS: ONCE EVERY 30 DAYS
 - FROZEN GROUND: AS SOON AS RUNOFF OCCURS OR PRIOR TO RESUMING CONSTRUCTION.
 - INSPECTION AND MAINTENANCE RECORDS MUST BE RETAINED FOR 3 YEARS AFTER FILING OF THE NOTICE OF TERMINATION AND MUST INCLUDE DATE AND TIME OF ACTION, NAME OF PERSON(S) CONDUCTING WORK, FINDING OF INSPECTIONS AND RECOMMENDATIONS FOR CORRECTIVE ACTION, DATE AND AMOUNT OF RAINFALL EVENTS GREATER THAN 0.5 INCHES IN A 24 HOUR PERIOD.
- MINIMUM MAINTENANCE**
 - SILT FENCE TO BE REPAIRED, REPLACED, SUPPLEMENTED WHEN NONFUNCTIONAL, OR 1/3 FULL; WITHIN 24 HOURS
 - SEDIMENT BASINS DRAINED AND SEDIMENT REMOVED WHEN REACHES 1/2 STORAGE VOLUME. REMOVAL MUST BE COMPLETE WITHIN 72 HOURS OF DISCOVERY.
 - SEDIMENT REMOVED FROM SURFACE WATERS WITHIN SEVEN DAYS
 - CONSTRUCTION SITE EXITS INSPECTED, TRACKED SEDIMENT REMOVED WITH 24 HOURS.
 - PROVIDE COPIES OF EROSION INSPECTION RESULTS TO CITY ENGINEER FOR ALL RAIN EVENTS GREATER THAN 0.5" OVER 24 HOURS
- THE SWPPP, INCLUDING ALL CHANGES TO IT, AND INSPECTIONS AND MAINTENANCE RECORDS MUST BE KEPT AT THE SITE DURING CONSTRUCTION ACTIVITY BY THE PERMITEES WHO HAVE OPERATIONAL CONTROL OF THE SITE.
- OWNER MUST KEEP RECORDS OF ALL PERMITS REQUIRED FOR THE PROJECT, THE SWPPP, ALL INSPECTIONS AND MAINTENANCE, PERMANENT OPERATION AND MAINTENANCE AGREEMENTS, AND REQUIRED CALCULATIONS FOR TEMPORARY AND PERMANENT STORM WATER MANAGEMENT SYSTEMS. THESE RECORDS MUST BE RETAINED FOR THREE YEARS AFTER FILING NPDES NOTICE OF TERMINATION.
- SWPPP MUST BE AMENDED WHEN:**
 - THERE IS A CHANGE IN DESIGN, OPERATION, MAINTENANCE, WEATHER OR SEASONAL CONDITIONS THAT HAS A SIGNIFICANT EFFECT ON DISCHARGE
 - INSPECTIONS INDICATE THAT THE SWPPP IS NOT EFFECTIVE AND DISCHARGE IS EXCEEDING WATER QUALITY STANDARDS.
 - THE BMPS IN THE SWPPP ARE NOT CONTROLLING POLLUTANTS IN DISCHARGES OR IS NOT CONSISTENT WITH THE TERMS AND CONDITIONS OF THE PERMIT
 - AT ANY TIME AFTER PERMIT COVERAGE IS EFFECTIVE, THE MPCA MAY DETERMINE THAT THE PROJECT'S STORMWATER DISCHARGES MAY CAUSE, HAVE REASONABLE POTENTIAL TO CAUSE, OR CONTRIBUTE TO NON-ATTAINMENT OF ANY APPLICABLE WATER QUALITY STANDARD, OR THAT THE SWPPP DOES NOT INCORPORATE THE APPLICABLE REQUIREMENTS IN PART III.A., IMPAIRED WATERS AND TDS(S). IF A WATER QUALITY STANDARD CHANGES DURING THE TERM OF THIS PERMIT, THE MPCA WILL MAKE A DETERMINATION AS TO WHETHER A MODIFICATION OF THE SWPPP IS NECESSARY TO ADDRESS THE NEW STANDARD. IF THE MPCA MAKES SUCH DETERMINATION(S) OR ANY OF THE DETERMINATIONS IN PARTS III.B.1.-3., THE MPCA WILL NOTIFY THE PERMITEE(S) IN WRITING. IN RESPONSE, THE PERMITEE(S) MUST AMEND THE SWPPP TO ADDRESS THE IDENTIFIED CONCERNS AND SUBMIT INFORMATION REQUESTED BY THE MPCA, WHICH MAY INCLUDE AN INDIVIDUAL PERMIT APPLICATION. IF THE MPCA'S WRITTEN NOTIFICATION REQUIRES A RESPONSE, FAILURE TO RESPOND WITHIN THE SPECIFIED TIMEFRAME CONSTITUTES A PERMIT VIOLATION.
- CONCRETE WASHOUT AREA**
 - CONTRACTOR TO PROVIDE PREFABRICATED CONCRETE WASH-OUT CONTAINER WITH RAIN PROTECTION PER PLAN.
 - CONCRETE WASH-OUT TO BE IDENTIFIED WITH SIGNAGE STATING "CONCRETE WASHOUT AREA DO NOT OVERFILL"
 - CONCRETE WASHOUT WATER NEEDS TO BE PUMPED WITHIN 24 HOURS OF STANDING WATER IN WASHOUT AREA.
- IN THE EVENT OF ENCOUNTERING A WELL OR SPRING DURING CONSTRUCTION CONTRACTOR TO CEASE CONSTRUCTION ACTIVITY AND NOTIFY ENGINEER.
- PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO SURFACE WATER.
- TEMPORARY AND PERMANENT SOIL STABILIZATION**
 - TEMPORARY SOIL STABILIZATION MEASURES SHALL CONSIST OF SEEDING.
 - PERMANENT SOIL STABILIZATION SHALL CONSIST OF HYDRO MULCH OR STRAW MULCH.
 - 7 DAY STABILIZATION TIME FRAME IS REQUIRED FOR ALL EXPOSED SOILS THAT ARE DORMANT OR NOT BEING WORKED WITHIN THE 7 DAY WINDOW.
- FINAL STABILIZATION**
FINAL STABILIZATION REQUIRES THAT ALL SOIL DISTURBING ACTIVITIES HAVE BEEN COMPLETED AND THAT DISTURBED AREAS ARE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH 70% OF THE EXPECTED FINAL DENSITY, AND THAT ALL PERMANENT PAVEMENTS HAVE BEEN INSTALLED. ALL TEMPORARY BMPS SHALL BE REMOVED, DITCHES

- STABILIZED, AND SEDIMENT SHALL BE REMOVED FROM PERMANENT CONVEYANCES AND SEDIMENTATION BASINS IN ORDER TO RETURN THE POND TO DESIGN CAPACITY.
- TEMPORARY SEDIMENTATION BASINS**
 - THE TEMPORARY SEDIMENTATION BASINS SHALL BE CONSTRUCTED AND MADE OPERATIONAL PRIOR TO DISTURBANCE OF 10 OR MORE ACRES DRAINING TO A COMMON LOCATION.
 - TEMPORARY SEDIMENTATION BASINS ARE REQUIRED PRIOR TO RUNOFF LEAVING THE CONSTRUCTION SITE OR ENTERING SURFACE WATERS WHEN 5 OR MORE ACRES OF DISTURBED SOILS DRAIN TO A COMMON LOCATION. SINCE THE SITE IS WITHIN ONE MILE OF IMPAIRED WATER BODY, THE BASIN MUST PROVIDE 3,600 CUBIC FEET OF STORAGE BELOW THE OUTLET PER ACRE DRAINED. IF HYDRAULIC CALCULATIONS ARE AVAILABLE, THE TEMPORARY SEDIMENTATION BASIN MUST PROVIDE A STORAGE VOLUME EQUIVALENT TO THE 2-YEAR, 24-HOUR STORM, BUT IN NO CASE LESS THAN 1800 CUBIC FEET PER ACRE DRAINED. THE TEMPORARY SEDIMENTATION BASIN MUST BE CONSTRUCTED AND MADE OPERATIONAL CONCURRENT WITH THE START OF SOIL DISTURBANCE UP GRADIENT OF THE POND. THE TEMPORARY SEDIMENTATION BASIN SHALL BE DESIGNED TO PREVENT SHORT CIRCUITING, THE OUTFALL SHALL BE DESIGNED TO REMOVE FLOATABLE DEBRIS, ALLOW FOR COMPLETE DRAWDOWN OF THE POND FOR MAINTENANCE ACTIVITIES, AND HAVE ENERGY DISSIPATION. THE EMERGENCY SPILLWAY SHALL BE STABILIZED.
 - TEMPORARY SEDIMENTATION BASINS SHALL BE SITUATED OUTSIDE OF SURFACE WATERS AND ANY REQUIRED BUFFER ZONE, AND MUST BE DESIGNED TO AVOID DRAINING WETLANDS, UNLESS THE IMPACT IS IN COMPLIANCE WITH THE REQUIREMENTS OF THIS PERMIT.
 - EXCESSIVE SEDIMENT-LADEN WATER THAT IS NOT PROPERLY FILTERED WILL NOT BE PERMITTED TO DISCHARGE FROM SITE.
- DEWATERING AND BASIN DRAINING**
 - TURBID OR SEDIMENT-LADEN WATERS RELATED TO DEWATERING OR BASIN DRAINING SHALL BE DISCHARGED TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN ON THE PROJECT SITE UNLESS INFEASIBLE. THE TEMPORARY OR PERMANENT BASIN MAY DISCHARGE TO SURFACE WATERS IF THE BASIN WATER HAS BEEN VISUALLY CHECKED TO ENSURE ADEQUATE TREATMENT HAS BEEN OBTAINED IN THE BASIN AND THAT THE NUISANCE CONDITIONS WILL NOT RESULT FROM THE DISCHARGE. DISCHARGE POINTS SHALL BE ADEQUATELY PROTECTED FROM EROSION AND PROPER VELOCITY DISSIPATION PROVIDED.
 - ALL WATER FROM DEWATERING OR BASIN-DRAINING ACTIVITIES MUST BE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN THE RECEIVING CHANNELS OR ON DOWN SLOPE FOR DISPOSAL, OR INUNDATION IN WETLANDS CAUSING SIGNIFICANT ADVERSE IMPACTS TO THE WETLAND.
 - IF FILTERS WITH BACKWASH WATERS ARE USED, THE BACKWASH WATER SHALL BE HAULED AWAY FOR DISPOSAL, RETURNED TO THE BEGINNING OF THE TREATMENT PROCESS, OR INCORPORATED INTO SITE IN A MANNER THAT DOES NOT CAUSE EROSION. BACKWASH WATER MAY BE DISCHARGED TO SANITARY SEWER IF PERMISSION IS GRANTED BY THE SANITARY SEWER AUTHORITY.
- POLLUTION PREVENTION**
 - BUILDING PRODUCTS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS MUST BE UNDER COVER TO PREVENT DISCHARGE OR PROTECTED BY AN EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.
 - PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS MUST BE UNDER COVER.
 - HAZARDOUS MATERIALS AND TOXIC WASTE CONTAINER MUST BE PROVIDED TO PREVENT VANDALISM.
 - SOLID WASTE MUST BE STORED, COLLECTED AND DISPOSED OF IN COMPLIANCE WITH MINN. R. CH 7035.
 - PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY IN ACCORDANCE WITH MINN. R. CH 7041.
 - DISCHARGE OF SPILLED OR LEAKED CHEMICALS, INCLUDING FUEL, FROM ANY AREA WHERE CHEMICALS OR FUEL WILL BE LOADED OR UNLOADED SHALL BE PREVENTED USING DRIP PANS OR ABSORBENTS. SUPPLIES SHALL BE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS AND THAT AN APPROPRIATE DISPOSAL METHOD MUST BE AVAILABLE FOR RECOVERED SPILLED MATERIALS.
- DESIGN CALCULATIONS**
TEMPORARY & PERMANENT STORMWATER TREATMENT ARE DESIGNED TO MEET MPCA GENERAL & SPECIAL WATER REQUIREMENTS. CALCULATIONS ARE PART OF THE HYDROLOGY REPORT, WHICH IS TO BE CONSIDERED PART OF THE SWPPP DOCUMENTS. SEE HYDROLOGY REPORT FOR ADDITIONAL INFORMATION.
- GENERAL STORMWATER DISCHARGE REQUIREMENTS**
ALL REQUIREMENTS LISTED IN PART III OF THE PERMIT FOR DESIGN OF THE PERMANENT STORMWATER MANAGEMENT SYSTEM AND DISCHARGE HAVE BEEN INCLUDED IN THE PREPARATION OF THIS SWPPP. THESE INCLUDE BUT ARE NOT LIMITED TO:
 - THE EXPECTED AMOUNT, FREQUENCY, INTENSITY, AND DURATION PRECIPITATION.
 - THE NATURE OF STORMWATER RUNOFF AND RUN-ON AT THE SITE.
 - PEAK FLOW RATES AND STORMWATER VOLUMES TO MINIMIZE EROSION AT OUTLETS AND DOWNSTREAM CHANNEL AND STREAM BANK EROSION.
 - THE RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT ON THE SITE.
- CONSTRUCTION OF FILTRATION BASINS**
 - NO HEAVY TRAFFIC ON FILTRATION AREAS. CONSTRUCTION TO BE DONE WITH MINIMAL COMPACTION TO FILTRATION AREAS. IF COMPACTION IS ENCOUNTERED, BASIN SOILS MUST BE REMOVED & RELAND.
 - INFILTRATION SYSTEMS MUST NOT BE EXCAVATED TO FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAD BEEN CONSTRUCTED AND FULLY STABILIZED UNLESS RIGOROUS EROSION PREVENTION AND SEDIMENT CONTROLS ARE PROVIDED (PART III.D.1.C.).
 - WHEN AN INFILTRATION SYSTEM IS EXCAVATED TO FINAL GRADE (OR WITHIN THREE (3) FEET OF FINAL GRADE), THE PERMITEES MUST EMPLOY RIGOROUS EROSION PREVENTION AND SEDIMENT CONTROLS (E.G., DIVERSION BERM(S) TO KEEP SEDIMENT AND RUNOFF COMPLETELY AWAY FROM THE INFILTRATION AREA. THE AREA MUST BE STAKED OFF AND MARKED SO THAT HEAVY CONSTRUCTION VEHICLES OR EQUIPMENT WILL NOT COMPACT THE SOIL IN THE PROPOSED INFILTRATION AREA.
 - TO PREVENT CLOGGING OF THE INFILTRATION OR FILTRATION SYSTEM, THE PERMITEES MUST USE A PRE-TREATMENT DEVICE SUCH AS A VEGETATED FILTER STRIP, SMALL SEDIMENTATION BASIN, OR WATER QUALITY INLET (E.G., GRIT CHAMBER) TO SETTLE PARTICULATES BEFORE THE STORMWATER DISCHARGES INTO THE INFILTRATION OF FILTRATION SYSTEM.
- POST CONSTRUCTION**
THE WATER QUALITY VOLUME THAT MUST BE RETAINED ON SITE BY THE PROJECT'S PERMANENT STORMWATER MANAGEMENT SYSTEM DESCRIBED IN PART III.D, SHALL BE ONE (1) INCH OF RUNOFF FROM THE NEW IMPERVIOUS SURFACES CREATED BY THE PROJECT. SEE PART III.D.1. FOR MORE INFORMATION ON INFILTRATION DESIGN, PROHIBITIONS AND APPROPRIATE SITE CONDITIONS.
- RESPONSIBILITIES**
 - THE OWNER MUST IDENTIFY A CONTRACTOR WHO WILL OVERSEE THE SWPPP IMPLEMENTATION AND THE PERSON RESPONSIBLE FOR INSPECTION AND MAINTENANCE.
 - THE OWNER MUST IDENTIFY THE A PERSON WHO WILL BE RESPONSIBLE FOR LONG TERM OPERATIONS AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT SYSTEM.
 - UPON ACCEPTANCE BY THE CITY, ALL STORMWATER FACILITIES WILL BE PUBLIC AND MAINTAINED BY THE CITY.
- TRAINING REQUIREMENTS**
THE PERMITEE(S) SHALL ENSURE THE FOLLOWING INDIVIDUALS IDENTIFIED IN THIS PART HAVE BEEN TRAINED IN ACCORDANCE WITH THIS PERMIT'S TRAINING REQUIREMENTS.
 - WHO MUST BE TRAINED:
 - INDIVIDUAL(S) PREPARING THE SWPPP FOR THE PROJECT
 - INDIVIDUAL(S) OVERSEEING IMPLEMENTATION, OR, REVISING, AND AMENDING THE SWPPP AND INDIVIDUAL(S) PERFORMING INSPECTIONS AS REQUIRED IN PART IV.E. ONE OF THESE INDIVIDUAL(S) MUST BE AVAILABLE FOR AN ONSITE INSPECTION WITHIN 72 HOURS UPON REQUEST BY THE MPCA.
 - INDIVIDUAL(S) PERFORMING OR SUPERVISING THE INSTALLATION, MAINTENANCE AND REPAIR OF BMPS, AT LEAST ONE INDIVIDUAL ON A PROJECT MUST BE TRAINED IN THE JOB DUTIES.
 - TRAINING CONTENT:
 - THE CONTENT AND EXTENT OF TRAINING MUST BE COMMENSURATE WITH THE INDIVIDUAL'S JOB DUTIES AND RESPONSIBILITIES WITH REGARD TO ACTIVITIES COVERED UNDER THIS PERMIT FOR THE PROJECT. AT LEAST ONE INDIVIDUAL PRESENT ON THE PERMITTED PROJECT SITE OR AVAILABLE TO THE PROJECT SITE IN 72 HOURS MUST BE TRAINED IN THE JOB DUTIES DESCRIBED IN PART III.F.1.B. AND PART III.F.1.C.
 - THE PERMITEE(S) SHALL ENSURE THAT THE INDIVIDUALS ARE TRAINED BY LOCAL, STATE, FEDERAL AGENCIES, PROFESSIONAL OR OTHER ENTITIES WITH EXPERTISE IN EROSION PREVENTION, SEDIMENT CONTROL, PERMANENT STORMWATER MANAGEMENT AND THE MINNESOTA NPDES/SOCS CONSTRUCTION STORMWATER PERMIT. AN UPDATE REFRESHER TRAINING MUST BE ATTENDED EVERY THREE (3) YEARS STARTING THREE (3) YEARS FROM THE ISSUANCE DATE OF THIS PERMIT.

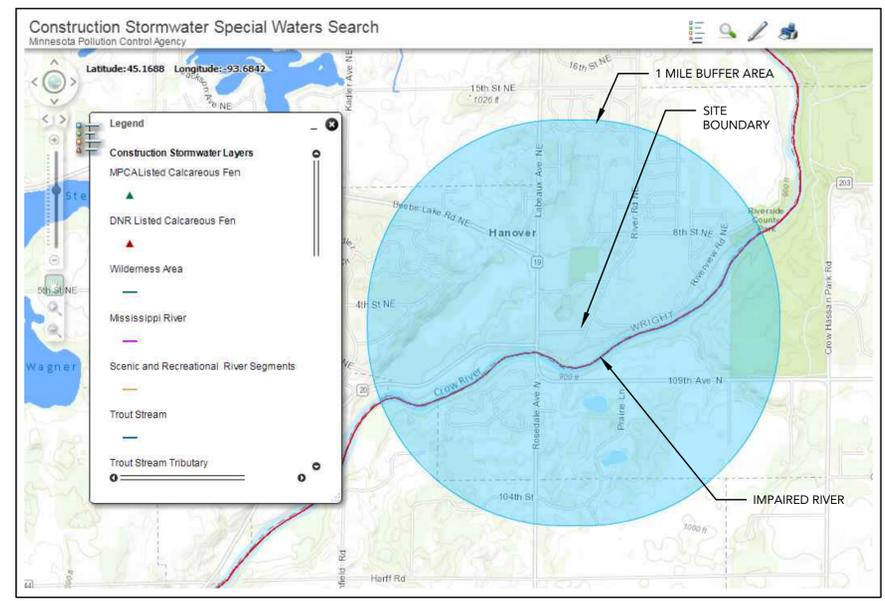
LIST OF CONTACTS

TITLE	CONTACT	COMPANY	PHONE NUMBER
OWNER	JOSH JACOBS	WITS REALTY	612-859-0354
PROJECT MANAGER	TODD MCLOUTH	LOUCKS	763-496-6742
SWPPP DESIGNER	ZACH WEBBER	LOUCKS	763-496-6753
CONTRACTOR	TBD		
SITE MANAGER	TBD		

UNIVERSITY OF MINNESOTA
Zachary H. Webber
Design of Construction SWPPP (May 31 2021)

* MPCA 24HR. HAZARDOUS SPILL HOTLINE: 651-649-5457 OF 80420798

SPECIAL AND IMPAIRED WATERS MAP



ESTIMATED QUANTITIES

DESCRIPTION	UNIT	QUANTITY
TEMPORARY ROCK CONSTRUCTION ENTRANCE	EA	1
SILT FENCE (STANDARD)	LF	±730
STAGE 2 SILT FENCE (STANDARD)	LF	±745
INLET PROTECTION	EA	12
WOODFIBER BLANKET	SY	.
CONCRETE WASHOUT	EA	.
BIOROLL	LF	.

PERMANENT STORMWATER MANAGEMENT

X	INFILTRATION
	STORMWATER HARVEST AND REUSE
	FILTRATION
X	WET SEDIMENTATION BASIN
	REGIONAL PONDING

RECEIVING WATERS

NAME OF WATER BODY	TYPE OF WATER BODY	SPECIAL WATER	IMPAIRED WATER	TYPE OF SPECIAL WATER

EROSION CONTROL NOTES

- ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES.
- A STABILIZED CONSTRUCTION ENTRANCE WILL BE PLACED AT ALL ENTRANCES THAT LEAD TO THE PROJECT SITE IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THE APPROVED DETAILS.
- SEDIMENT CONTROLS MUST BE IN PLACE AND APPROVED BY THE ENGINEER BEFORE ANY PHASE OF CONSTRUCTION CAN BEGIN.
- INLET PROTECTION WILL BE INSTALLED AT ALL CATCH BASINS WITHIN THE PROJECT AREA PER STANDARD DETAILS UNTIL THE SITE IS STABILIZED.
- PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO SURFACE WATER.
- STABILIZATION OF DISTURBED AREAS SHALL BE DONE BY PERMANENT TURF ESTABLISHMENT WHENEVER POSSIBLE.
- IN THE EVENT THAT PERMANENT STABILIZATION CANNOT BE IMPLEMENTED WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE DISTURBED AREA HAS CEASED, TEMPORARY STABILIZATION BMPS MUST BE SCHEDULED TO OCCUR WITHIN THAT 7 DAY TIME FRAME. RAPID STABILIZATION METHOD 4 SHALL BE EMPLOYED WITHIN 200 FEET OF THE NORMAL WETTED PERIMETER OF ALL DISCHARGE POINTS WITHIN 24 HOURS.
- ALL STOCKPILES MUST HAVE PERIMETER SEDIMENT CONTROL IMPLEMENTED AND MAINTAINED AT ALL TIMES. STOCKPILES SHALL RECEIVE TEMPORARY STABILIZATION IF UNWORKED FOR 7 DAYS.
- CONCRETE SLURRY FROM REMOVAL OPERATIONS MUST BE VACUUMED UP IMMEDIATELY. NO CONCRETE WASHOUT SHALL COME IN CONTACT WITH THE GROUND AND MUST BE PROPERLY DISPOSED OF.
- ADDITIONAL EROSION AND SEDIMENT CONTROL MAY BE ADDED DURING ANY PHASE OF CONSTRUCTION AS DIRECTED BY THE ENGINEER.
- CONTRACTOR MUST SUBMIT A DEWATERING PLAN TO THE ENGINEER FOR APPROVAL 10 DAYS PRIOR TO ANY DEWATERING ON SITE. THE PLAN MUST INCLUDE A DEWATERING SYSTEM PRIOR TO DISCHARGING INTO RECEIVING WATER. THE DEWATERING PLAN MUST ENSURE THAT THE DISCHARGE WATER IS FREE OF SEDIMENT AND TURBID WATER IN ACCORDANCE WITH THE PROJECT SPEC. THE DEWATERING PLAN MUST ALSO INCLUDE A COMPONENT FOR ONSITE TESTING AND MONITORING OF TURBIDITY AND PH.
- RAPID STABILIZATION #4 WITH CATEGORY 3N BLANKET ON SIDE SLOPES 3:1 OR STEEPER.
- TEMPORARY OR PERMANENT STABILIZATION AND DOWN GRADIENT PERIMETER SEDIMENT CONTROL IS NEEDED ON ROW, CURB, AND GUTTER LINE.

RIVER TOWN VILLAS OF HANOVER
11218 CHURCH STREET NE
HANOVER, MN 55341

WITS REALTY
1010 W. LAKE STREET
SUITE 200
MINNEAPOLIS, MN 55408

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CIVIL ENGINEERING
LAND SURVEYING
LANDSCAPE ARCHITECTURE
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CADD QUALIFICATION

CADD files prepared by the Consultant for this project are instruments of the Consultant's professional service for use solely with respect to this project. These CADD files shall not be used on other projects, for additions to this project, or for completion of this project by others without written approval by the Consultant. With the Consultant's approval, others may be permitted to obtain copies of the CADD drawing files for information and reference only. All intentional or unintentional revisions, additions, or deletions to these CADD files shall be made at the full risk of that party making such revisions, additions or deletions and that party shall hold harmless and indemnify the Consultant from any & all responsibilities, claims, and liabilities.

SUBMITTAL/REVISIONS

02/22/19 PRELIMINARY SUBMITTAL

PROFESSIONAL SIGNATURE

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota.
Todd W. McLouth - PE
License No. 20383
Date

QUALITY CONTROL

Loucks Project No. 03128A
Project Lead TWM
Drawn By KMM
Checked By TWM
Review Date

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SUBMITTAL/REVISIONS

02/22/19 PRELIMINARY SUBMITTAL

PROFESSIONAL SIGNATURE

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

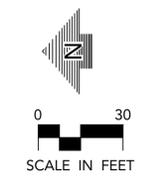
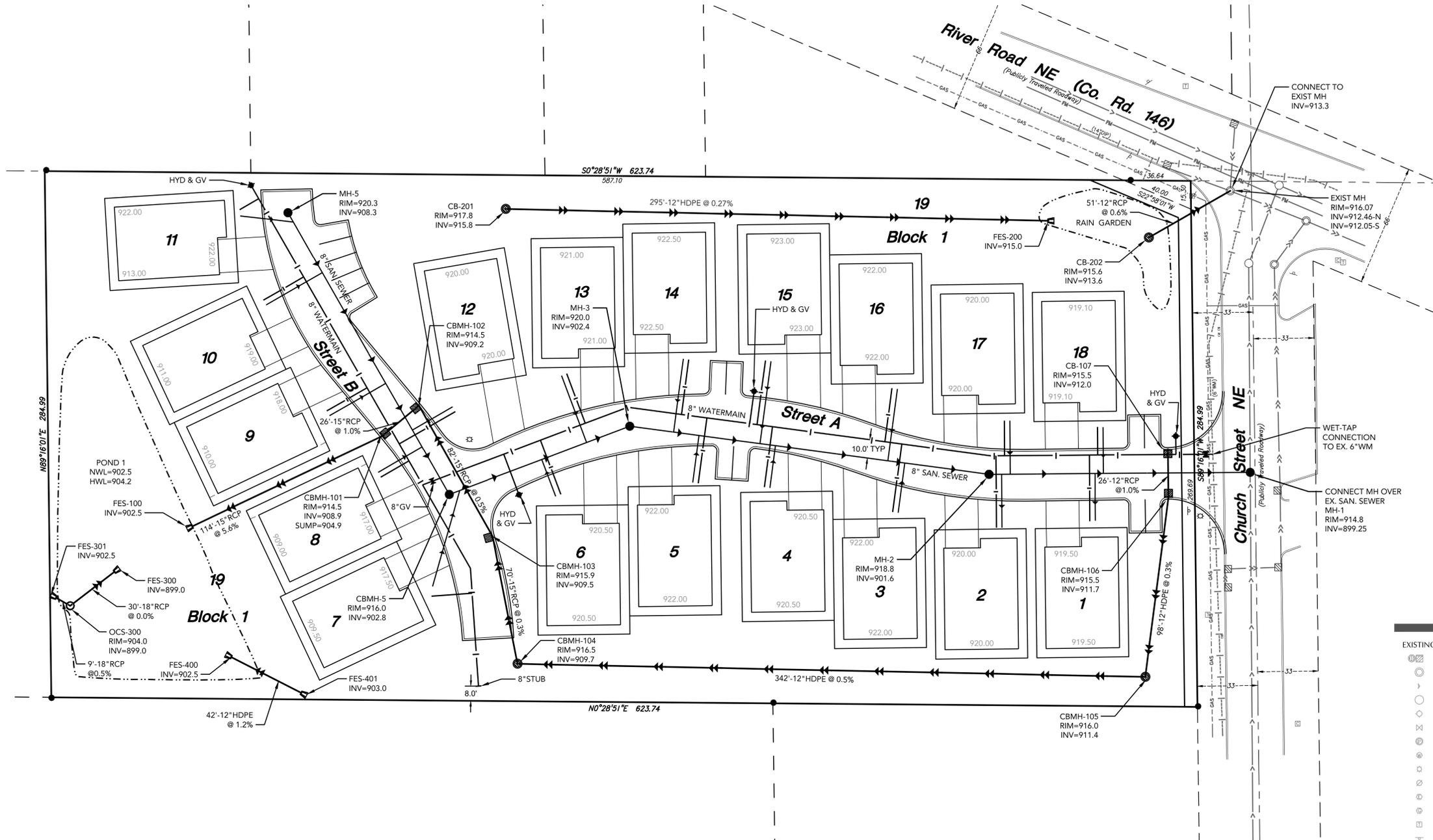
PRELIMINARY
Todd W. McLoth - PE
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C3-2 - C3-3 SWPPP PLAN & NOTES
C4-1 UTILITY PLAN
C8-1 - C8-2 CIVIL DETAILS
L1-1 LANDSCAPE PLAN
L2-2 TREE INVENTORY PLAN



EXISTING	PROPOSED	LEGEND
		CATCH BASIN
		STORM MANHOLE
		FLARED END SECTION
		SANITARY MANHOLE
		HYDRANT
		GATE VALVE
		POST INDICATOR VALVE
		WATER MANHOLE / WELL
		LIGHT POLE
		POWER POLE
		ELECTRIC METER
		GAS METER
		TELEPHONE PEDESTAL
		SIGN
		BENCHMARK
		SOIL BORING
		PARKING STALL COUNT
		ACCESSIBLE PARKING STALL
		STORM SEWER
		DRAIN TILE
		SANITARY SEWER
		FORCE MAIN
		WATERMAIN
		SANITARY SEWER SERVICE
		WATER SERVICE
		UNDERGROUND ELECTRIC
		UNDERGROUND FIBER OPTIC
		UNDERGROUND GAS
		UNDERGROUND TELEPHONE
		OVERHEAD UTILITY
		FENCE
		CHAIN LINK FENCE
		CONCRETE CURB
		RETAINING WALL
		CONCRETE
		NO PARKING
		BUILDING
		CONTOUR
		SPOT ELEVATION
		DIRECTION OF FLOW
		TREE LINE
		PARKING SETBACK LINE
		BUILDING SETBACK LINE

UTILITY NOTES

PROPOSED PIPE MATERIALS:
 WATERMAIN CL 52 DIP 6" TO 8" DIAMETER
 SANITARY SEWER PVC SDR 35 & SCH 40 6" TO 8" DIAMETER
 STORM SEWER DUAL WALL HDPE 12" TO 15" DIAMETER
 RCP, CLASS 5 12" TO 18" DIAMETER

PROJECT BENCHMARK

SITE BENCHMARK: TOP NUT OF HYDRANT LOCATED AT INTERSECTION OF CHURCH ST NE & RIVER ROAD NE. ELEVATION = 920.32 FEET (NGVD/29)



WARNING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND /OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

MANHOLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.

INTERIOR CHIMNEY SEAL (STRIKE PRODUCTS OR APPROVED EQUIVALENT)

NEENAH R-1642 FRAME AND TYPE II WITH 2 CONCEALED PICK HOLES

LATESTE WITH MINIMUM 5 - 2" RINGS, MAXIMUM 8" RINGS

STANDARD OFFSET CONE SECTION (SEE NOTE 4)

STEPS 16" O.C.

48" DIA.

18" MIN.

PRE-CAST BOTTOM SECTION WITH INVERT

#5 AT 12" O.C. EACH WAY

"RES-SEAL" OR APPROVED EQUIVALENT FOR CONNECTING PIPE TO MANHOLE

NO SCALE

NOTES:

- ALL CONNECTIONS TO EXISTING STRUCTURES SHALL BE CORE DRILLED
- MANHOLE STEPS SHALL BE CAST IN ALUMINUM OR MA INDUSTRY WITH VINYL COATING OR APPROVED EQUIVALENT AND SHALL BE LOCATED ON THE DOWN STREAM SIDE OF MANHOLE
- STEPS SHALL BE PLACED SO THAT THE OFFSET VERTICAL PORTION OF THE CONE IS FACING DOWN STREAM
- MANHOLE COVERS SHALL BE CAST WITH THE WORDS "STORM SEWER"
- THE INITIAL & FINAL RAISING OF CASTINGS SHALL BE CONSIDERED INCLUDED IN THE UNIT PRICE BID FOR CASTING THE MANHOLE
- MAXIMUM DEPTH FROM TOP OF CASTING TO FIRST STEP SHALL NOT BE MORE THAN 16"
- STEPS SHALL ALIGN WITH THE OPENING TO PROVIDE ACCESS TO THE MANHOLE
- ALL SANITARY MANHOLES SHALL BE SEALED WITH INTERNAL MOLDED POLYMER SHEILD, SUCH AS "YI BARRIER" AS MANUFACTURED BY STRIKE PRODUCTS APPROVED EQUIVALENT

Title: Standard Manhole for Sanitary Sewer

Date: 01-16 **Plate No. SAN-01**

Revised:

GROUND WATER LEVEL SHALL BE LOWERED A MINIMUM OF 2' BELOW TRENCH BOTTOM

TRENCH BOTTOM

OD = 3.0'

d = 2" MAX

12"

1"

OD + 6"

2

1

NOTES:

- GRANULAR PIPE BEDDING MATERIAL (MNDOT SPEC 3149.2F) (INCIDENTAL)
- 1/2" CLEAR AGGREGATE BEDDING, TO BE USED ONLY IN AREAS AS DIRECTED BY ENGINEER. (NO PAYMENT WILL BE MADE WITHOUT PRIOR APPROVAL FROM THE ENGINEER)

Title: PVC Pipe Bedding Detail

Date: 01-16 **Plate No. SAN-06**

Revised:

Water Main

PVC sewer service Schedule 40 minimum slope 2% 4" for residential 6" for commercial

Metal Fence Posts

Service riser 4" DIP or PVC Schedule 40

Support for wye and bends shall consist of a minimum of .5 C.Y. of aggregate (MNDOT 3149K)

See NOTE 1

Wood 2"x2" Marker to be placed from 6" below to 4" above sanitary service

NOTES:

- Whenever service lines are installed in areas of high groundwater the last 5', as a minimum, are to be installed on a 45' riser to extend service line above groundwater level.
- Metal fence post at end of water and sanitary service, 4' above grade. Water fence post to be painted blue. Sanitary fence post to be painted green.
- Cleanouts are required every 100' on sanitary sewer services.

Title: Sewer Service Connections

Date: 01-16 **Plate No. SAN-10**

Revised:

Service riser 4" DIP or PVC Schedule 40

Support for wye and bends shall consist of a minimum of .5 C.Y. of aggregate (MNDOT 3149K)

Sewer Main

NOTES:

Where the sanitary main is deeper than 14.5', service risers shall be required.

Title: Service Riser

Date: 01-16 **Plate No. SAN-11**

Revised:

Hydra-Finder Type Hydrant flag

Waterous Pacer Model WB-67-250 Hydrant

Backfill to be tamped

#12 Gage Solid Copper Tracer wire. Attach tracer wire under bottom bolt.

1.5 Cubic Yards Gravel or Crushed Rock. Cover with Polyethylene Wrap.

8" Concrete Block

Tie all fittings with Min. of two, 3/4" Diameter Rods (Stainless steel or Epoxy coated), or with Megalugs

Connect tracer wire to main tracer wire

NOTE:

- Factory installed plugs required whenever hydrants are installed in areas with high groundwater level, as determined by dewatering requirements and the City Engineer. The main nozzle shall be painted blue for all hydrants with plugged drain holes.
- All ductile iron watermain fittings shall be fusion bonded epoxy coated.
- Hydrants shall be marked with stainless steel tag from factory.
- Contractor shall supply two hydrant flags, one to be installed on the hydrant and the second delivered to the Hanover Maintenance Facility.
- All hydrant heads are to be constructed with Polywadded DIP, Class 52.
- All watermain bolts shall be ASTM F593 Type 316 Stainless Steel or approved equal.

Title: Hydrant Detail

Date: 01-16 **Plate No. WAT-01**

Revised:

ADAPTOR REQUIRED ON ALL GATE VALVES (INCIDENTAL)

VALVE BOX SETTING TO BE 1/2"-3/4" BELOW PAVEMENT AND AT GRADE IN TURF AREAS. VALVE BOXES SHALL BE RAISED PRIOR TO PLACING THE FIRST LIFT OF PAVEMENT

TYLER TYPE DROP LID OR APPROVE EQUAL MARKED WITH "WATER"

GATE VALVE

1/2" RUBBER GASKET INSTALLED BETWEEN THE GATE VALVE AND GATE VALVE ADAPTOR

VALVE BOX SHALL BE SET TO HAVE 6" ADJUSTMENT UP AND DOWN FROM FINISH GRADE

ROD EXTENSION REQUIRED (INCIDENTAL)

DUCTILE IRON (TYLER TYPE) VALVE BOX, OR APPROVED EQUAL

1 1/2" WASHED AGGREGATE AND TYPE 3 FABRIC (MIN. 1 C.Y.)

RESILIENT WEDGE GATE VALVE (6" - 12" AMERICAN FLOW CONTROL 2500 SERIES, U.S. PIPE METROSEAL 250, KENNEDY, CLOW OR APPROVED EQUAL "RIGHT HAND VALVES ONLY")

8" 13"x 5" MANHOLE BLOCK

NOTES:

- GATE VALVES SHOULD BE USED ON 6" THROUGH 12" WATERMAIN
- VALVE BOX INSERTS ARE NOT ALLOWED UNLESS APPROVED BY THE ENGINEER
- VALVE BOXES SHALL BE INSTALLED PLUMB AND SHALL ALLOW A 4" P.V.C. PIPE TO PASS ENTIRELY OVER THE GATE VALVE NUT AFTER INSTALLATION IS COMPLETE.
- ALL VALVES SHALL BE TIED WITH 3/4" THREADED RODS TO THE MAIN MESA LOGS MAY BE USED IN LIEU OF THE RODS.
- THE HEIGHT OF THE CAST IRON OR DUCTILE IRON ADJUSTMENT RING IS DETERMINED BY THE THICKNESS OF THE WEAR COURSE.
- CAST IRON OR DUCTILE IRON ADJUSTMENT RINGS TO BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.
- THE INITIAL & FINAL RAISING OF VALVE BOXES SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

Title: Gate Valve and Box Installation

Date: 01-16 **Plate No. WAT-02**

Revised:

Water service

Corporation Stop: Mueller H-1500, Ford F1000 or F600, McDonald 4701

Water service 1" minimum

8" Cover (Min)

Curved segmental manhole block

NOTES:

- All new curb boxes must have riser rods adjustable up and down for 7/8" of cover. When an existing curb box is on a construction or reconstruction project, riser rods shall be installed to all curb boxes on that project.
- Placement of curb stop and box on private streets shall be 10' back of curb with no copper stubbed past the curb stop and box.
- Copper is to be one piece, no joints, couplings, etc., allowed from main to curb stop.
- Water service and sanitary sewer service shall have a 3' horizontal separation.
- Curb boxes located in driveways or parking lots shall be covered with a Ford A-1 meter box cover.
- Metal fence post at end of water and sanitary service, 4' above grade. Water fence post to be painted blue. Sanitary fence post to be painted green.
- Copper size (C.T.S.) polyethylene service tubing sized per plan.
- HDPE is to be one piece, no joints, couplings, etc., allowed from main to stop. Backfill material shall be granular bedding material, free of stones.
- Tracer wires, #10 AWG solid copper wire with U.S.E. rated insulation.

NOMINAL FITTING SIZE, INCHES	TEE, WYE, PUG OR CAP	90° BEND, PUG OR CROSS	TEE PLUGGED ON RUN	45° BEND	22-1/2° BEND	11-1/4° BEND
4	1.0	1.4	1.9	1.4	1.0	-
6	2.1	3.0	4.3	3.0	1.6	1.0
8	3.8	5.3	7.6	5.4	2.9	1.5
10	5.9	8.4	11.8	8.4	4.6	2.6
12	8.5	12.0	17.0	12.0	6.6	3.4
14	11.5	16.3	23.0	16.3	8.9	4.6
16	15.0	21.3	30.0	21.3	11.6	6.0
18	19.0	27.0	38.0	27.0	14.6	7.6
20	23.5	33.3	47.0	33.3	18.1	9.4
24	34.0	48.0	68.0	48.0	26.2	13.6

Title: Water Service Connections

Date: 01-16 **Plate No. WAT-04**

Revised:

1/4" PLYWOOD OVER FACE OF BOLTS

PUG OR CAP

WYE

PUG OR CAP

BEND

PUGGED CROSS

PUGGED TEE

NOMINAL FITTING SIZE, INCHES	TEE, WYE, PUG OR CAP	90° BEND, PUG OR CROSS	TEE PLUGGED ON RUN	45° BEND	22-1/2° BEND	11-1/4° BEND
4	1.0	1.4	1.9	1.4	1.0	-
6	2.1	3.0	4.3	3.0	1.6	1.0
8	3.8	5.3	7.6	5.4	2.9	1.5
10	5.9	8.4	11.8	8.4	4.6	2.6
12	8.5	12.0	17.0	12.0	6.6	3.4
14	11.5	16.3	23.0	16.3	8.9	4.6
16	15.0	21.3	30.0	21.3	11.6	6.0
18	19.0	27.0	38.0	27.0	14.6	7.6
20	23.5	33.3	47.0	33.3	18.1	9.4
24	34.0	48.0	68.0	48.0	26.2	13.6

NOTES:

- CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
- KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
- REQUIRED BEARING AREAS AT FITTING SHALL BE AS NOTED ABOVE, UNLESS INDICATED OTHERWISE.
- BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD PLATE.
- ABOVE BEARING AREAS BASED ON TEST PRESSURES OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 LBS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150) X (2000/SOIL BEARING STRESS) X (TABLE VALUE)

Title: Poured Concrete Thrust Blocking for Watermain

Date: 01-16 **Plate No. WAT-05**

Revised:

31"

24"

3-1/2"

PLAN

FLOW LINE SHALL BE MIN. 0.7' BELOW TOP OF CURB

CONCRETE COLLAR POURED DURING CURB AND CUTTER INSTALLATION

CONCRETE COLLAR SHALL ENCASE RINGS AND BE A MINIMUM OF 1" ABOVE CASTING

NON-SHRINKING GROUT (UTILITY UNDERGROUND SPEC MIX OR APPROVED EQUAL)

VOIDS FILLED WITH CONCRETE BRICK OR BLOCK ONLY

6" PRECAST OR 8" POURED BASE

SECTION A-A

NO SCALE

NOTES:

- REINFORCING TO CONSIST OF #4 BARS @ 8" O.C., 4' MINIMUM LENGTH, EACH SIDE OF CASTING
- GROUT BOTTOM TO DRAIN TO CENTER
- PIPE CUT-OUTS TO BE LOCATED WHERE REQUIRED
- INLET PROTECTION TO BE INSTALLED IN CATCH BASIN AND MAINTAINED AS DIRECTED BY THE ENGINEER
- MORTAR SHALL MEET ASTM C270 AND ASTM C387 AND MNDOT SPECIFICATION 2506.2B

Title: Standard Catch Basin

Date: 03-18 **Plate No. STO-01**

Revised:

MANHOLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478

CONCRETE GROUT (TYPE)

NEENAH R-1642 FRAME AND TYPE II WITH 2 CONCEALED PICK HOLES

CONCRETE ADJUSTING RINGS AND MORTAR PER MNDOT SPECS 5 - 2" RINGS, MAXIMUM 8" RINGS

STANDARD OFFSET CONE SECTION (SEE NOTE 4)

ROUTING BETWEEN PIPE AND MANHOLE BARREL SHALL BE WITH NON-SHRINKING CEMENT.

VOIDS FILLED WITH CONCRETE BRICK OR BLOCK ONLY

8" PRECAST OR 8" POURED BASE

NO SCALE

NOTES:

- MANHOLE STEPS SHALL BE CAST ALUMINUM OR MA INDUSTRY WITH VINYL COATING OR APPROVED EQUIVALENT AND SHALL BE LOCATED ON THE DOWN STREAM SIDE OF THE MANHOLE
- STEPS SHALL BE PLACED SO THAT THE OFFSET VERTICAL PORTION OF THE CONE IS FACING DOWN STREAM
- MANHOLE COVERS SHALL BE CAST WITH THE WORDS "STORM SEWER"
- THE INITIAL & FINAL RAISING OF CASTINGS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT
- MAXIMUM DEPTH FROM TOP OF CASTING TO FIRST STEP SHALL NOT BE MORE THAN 16"
- STEPS SHALL ALIGN WITH THE OPENING TO PROVIDE ACCESS TO THE MANHOLE
- MORTAR SHALL MEET ASTM C270 AND ASTM C387 AND MNDOT SPECIFICATION 2506.2B

Title: Standard Manhole for Storm Drain

Date: 03-18 **Plate No. STO-02**

Revised:

RIPRAP AT PIPE OUTLETS

SECTION A-A

SECTION B-B

FOR PIPES GREATER THAN OR EQUAL TO 48" USE 2.0' THICKNESS AND 3.0' MINIMUM OVER THE RIPRAP. FOR PIPES 36" AND UNDER USE 1.5' THICKNESS AND 2.0' MINIMUM OVER THE RIPRAP.

NOTE: REQUIREMENTS FOR RIPRAP SIZE, THICKNESS, WILL BE EXCLUDED IN PLANS.

TABLE OF QUANTITIES	RIPRAP AT PIPE OUTLETS	RIPRAP AT RCP-A OR BOXES OF EQUIVALENT SPAN WIDTH
NO.	DESCRIPTION	DESCRIPTION
1	48" DIA. 1.5' MIN. OVER PIPE	48" DIA. 1.5' MIN. OVER PIPE
2	48" DIA. 2.0' MIN. OVER PIPE	48" DIA. 2.0' MIN. OVER PIPE
3	48" DIA. 3.0' MIN. OVER PIPE	48" DIA. 3.0' MIN. OVER PIPE
4	48" DIA. 4.0' MIN. OVER PIPE	48" DIA. 4.0' MIN. OVER PIPE
5	48" DIA. 5.0' MIN. OVER PIPE	48" DIA. 5.0' MIN. OVER PIPE
6	48" DIA. 6.0' MIN. OVER PIPE	48" DIA. 6.0' MIN. OVER PIPE
7	48" DIA. 7.0' MIN. OVER PIPE	48" DIA. 7.0' MIN. OVER PIPE
8	48" DIA. 8.0' MIN. OVER PIPE	48" DIA. 8.0' MIN. OVER PIPE
9	48" DIA. 9.0' MIN. OVER PIPE	48" DIA. 9.0' MIN. OVER PIPE
10	48" DIA. 10.0' MIN. OVER PIPE	48" DIA. 10.0' MIN. OVER PIPE
11	48" DIA. 11.0' MIN. OVER PIPE	48" DIA. 11.0' MIN. OVER PIPE
12	48" DIA. 12.0' MIN. OVER PIPE	48" DIA. 12.0' MIN. OVER PIPE
13	48" DIA. 13.0' MIN. OVER PIPE	48" DIA. 13.0' MIN. OVER PIPE
14	48" DIA. 14.0' MIN. OVER PIPE	48" DIA. 14.0' MIN. OVER PIPE
15	48" DIA. 15.0' MIN. OVER PIPE	48" DIA. 15.0' MIN. OVER PIPE
16	48" DIA. 16.0' MIN. OVER PIPE	48" DIA. 16.0' MIN. OVER PIPE
17	48" DIA. 17.0' MIN. OVER PIPE	48" DIA. 17.0' MIN. OVER PIPE
18	48" DIA. 18.0' MIN. OVER PIPE	48" DIA. 18.0' MIN. OVER PIPE
19	48" DIA. 19.0' MIN. OVER PIPE	48" DIA. 19.0' MIN. OVER PIPE
20	48" DIA. 20.0' MIN. OVER PIPE	48" DIA. 20.0' MIN. OVER PIPE
21	48" DIA. 21.0' MIN. OVER PIPE	48" DIA. 21.0' MIN. OVER PIPE
22	48" DIA. 22.0' MIN. OVER PIPE	48" DIA. 22.0' MIN. OVER PIPE
23	48" DIA. 23.0' MIN. OVER PIPE	48" DIA. 23.0' MIN. OVER PIPE
24	48" DIA. 24.0' MIN. OVER PIPE	48" DIA. 24.0' MIN. OVER PIPE
25	48" DIA. 25.0' MIN. OVER PIPE	48" DIA. 25.0' MIN. OVER PIPE
26	48" DIA. 26.0' MIN. OVER PIPE	48" DIA. 26.0' MIN. OVER PIPE
27	48" DIA. 27.0' MIN. OVER PIPE	48" DIA. 27.0' MIN. OVER PIPE
28	48" DIA. 28.0' MIN. OVER PIPE	48" DIA. 28.0' MIN. OVER PIPE
29	48" DIA. 29.0' MIN. OVER PIPE	48" DIA. 29.0' MIN. OVER PIPE
30	48" DIA. 30.0' MIN. OVER PIPE	48" DIA. 30.0' MIN. OVER PIPE

Title: Riprap Detail

Date: 01-16 **Plate No. STO-04**

Revised:

GROUND WATER LEVEL SHALL BE LOWERED A MINIMUM OF 2' BELOW TRENCH BOTTOM

TRENCH BOTTOM

OD = 3.0'

d = 2" MAX

12"

1"

OD + 6"

2

1

NOTES:

- SELECTED MATERIAL (MNDOT SPEC 2451.30) (INCIDENTAL)
- GRANULAR PIPE BEDDING MATERIAL (MNDOT SPEC 3149.2F) (INCIDENTAL)
- 1/2" CLEAR AGGREGATE BEDDING, TO BE USED ONLY IN AREAS AS DIRECTED BY ENGINEER. (NO PAYMENT WILL BE MADE WITHOUT PRIOR APPROVAL FROM THE ENGINEER)

Title: RCP Pipe Bedding Detail

Date: 01-16 **Plate No. STO-07**

Revised:

24"x36" SLAB OPENING FOR NEENAH R3067V (ON CONTINUOUS GRADES) OR R3067VB (AT LOW POINTS) OR EQUAL

CONCRETE GROUT (TYPE)

6" PRECAST REINFORCED CONCRETE MANHOLE SLAB WITH #4 BARS AT 5" O.C. EACH WAY AND 2-#4 BARS AT ALL SIDES OF OPENING.

ADJUSTING RINGS (2 - 2" RINGS MINIMUM 5 - 2" RINGS MAXIMUM MAX. HORIZONTAL OFFSET = 0.25')

48" - 120"

4" - 0"

1/2" MINIMUM

6" PRECAST OR 8" POURED BASE

SECTION

NOTES:

- MANHOLE STEPS SHALL BE CAST ALUMINUM OR MA INDUSTRY WITH VINYL COATING OR APPROVED EQUIVALENT AND SHALL BE LOCATED ON THE DOWN STREAM SIDE OF THE MANHOLE
- STEPS SHALL BE PLACED SO THAT THE OFFSET VERTICAL PORTION OF THE CONE IS FACING DOWN STREAM
- MANHOLE COVER SHALL BE CAST WITH THE WORDS "STORM SEWER"
- THE INITIAL & FINAL RAISING OF CASTINGS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT
- MAXIMUM DEPTH FROM TOP OF CASTING TO FIRST STEP SHALL NOT BE MORE THAN 16"
- STEPS SHALL ALIGN WITH THE OPENING TO PROVIDE ACCESS TO THE MANHOLE
- TOP BARREL SECTION BELOW TOP SLAB TO HAVE FLAT TOP EDGE SEALED WITH 2 BEADS OF RAMEX OR EQUAL

Title: Catch Basin Manhole Type II

Date: 01-16 **Plate No. STO-10**

Revised:

SEE CITY PLATE NO. STO-09 FOR RIPRAP PLACEMENT.

ANCHOR CLIP

TIE LAST 3 PIPE JOINTS PER JOINT. INSTALL AT 60" FROM TOP OR BOTTOM OF PIPE.

PROVIDE 3 ANCHOR CLIPS TO FASTEN TRASH GUARD TO FLARED END SECTION. HOT DIP GALVANIZE AFTER FABRICATION.

ANCHOR BOTH SIDES.

TRASH GUARD SIZING	PIPE SIZE	BARS	BOLTS
12"-18"	3/4"	4"	5/8"
21"-42"	1 1/4"	6"	3/4"
48"-72"	1 1/4"	12"	1"

Title: Flared End Section And Trash Guard

Date: 01-16 **Plate No. STO-14**

Revised:

RIVER TOWN VILLAS OF HANOVER

11218 CHURCH STREET NE
HANOVER, MN 55341

WITS REALTY

1010 W. LAKE STREET
SUITE 200
MINNEAPOLIS, MN 55408

LOUCKS

PLANNING
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CADD QUALIFICATION

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SUBMITTAL/REVISIONS

02/22/19 PRELIMINARY SUBMITTAL

PROFESSIONAL SIGNATURE

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

PRELIMINARY

Todd W. McLoath - PE

License No. 20383
Date

QUALITY CONTROL

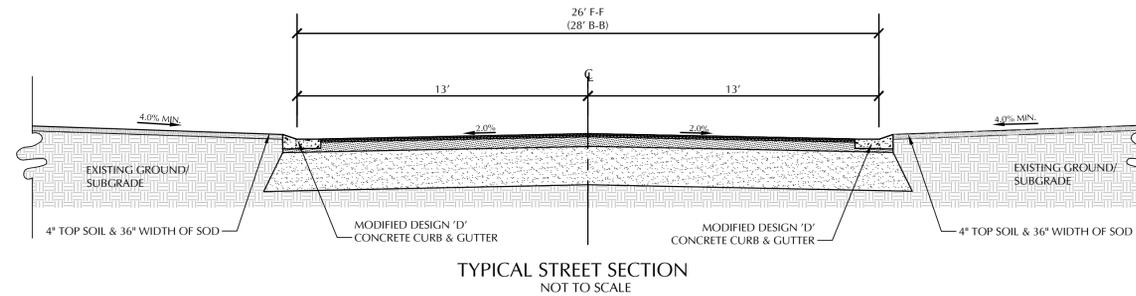
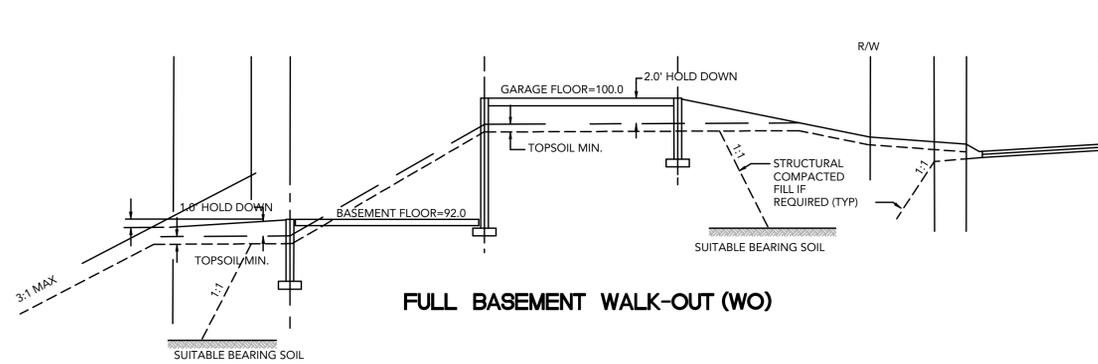
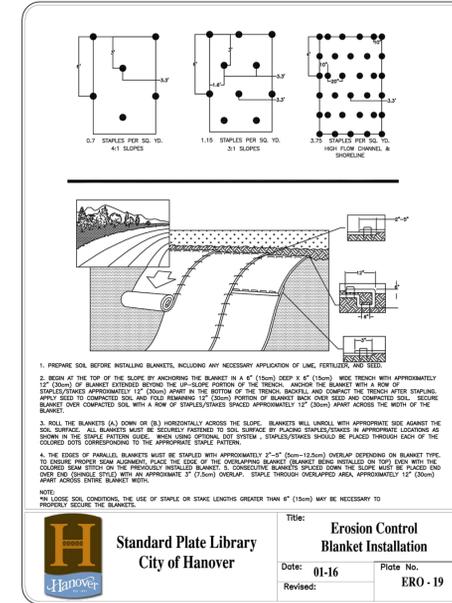
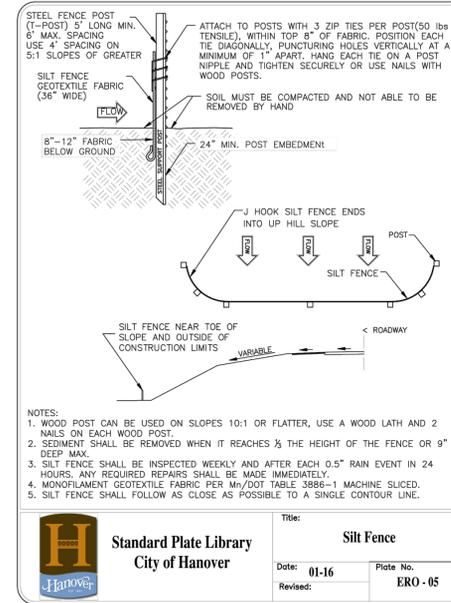
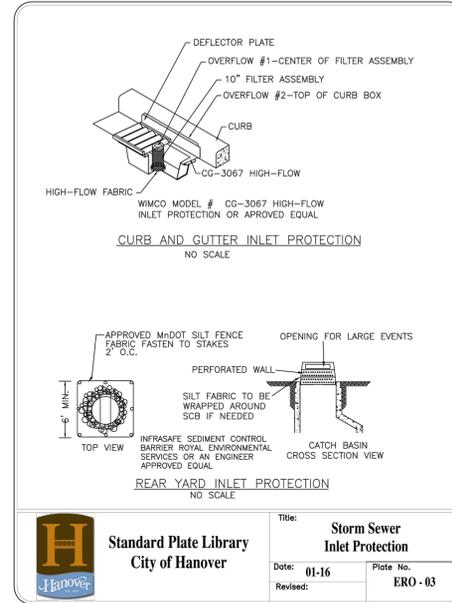
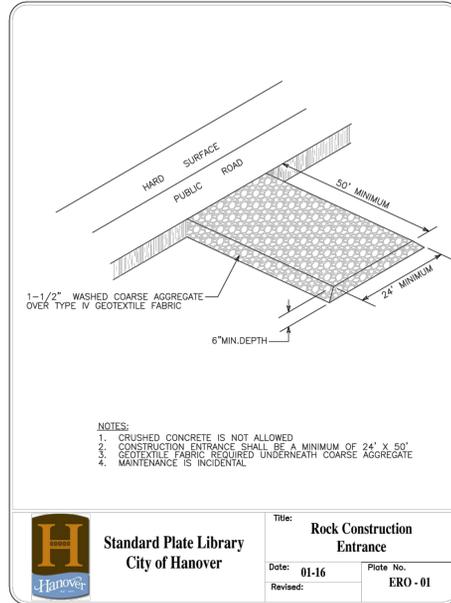
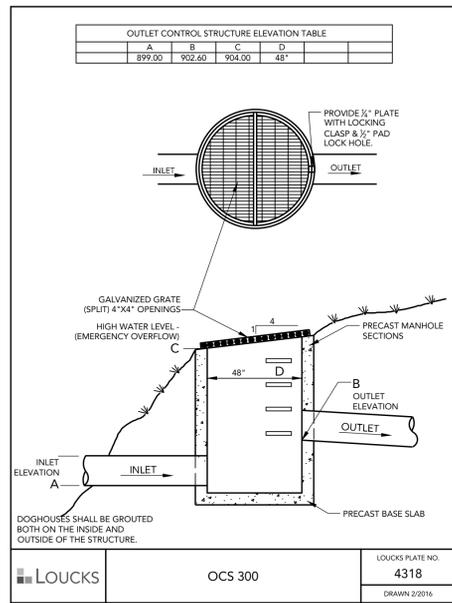
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Project Lead TWM
Drawn By KMM
Checked By TWM
Reviewed By TWM

SHEET INDEX

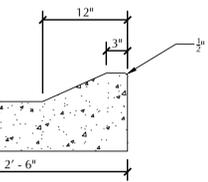
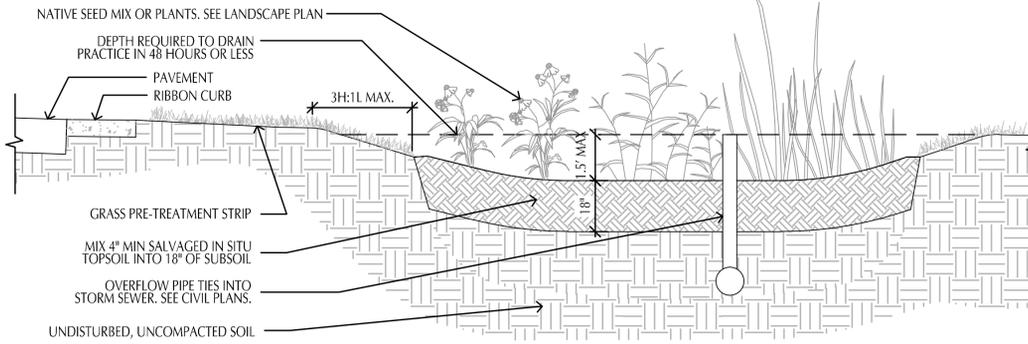
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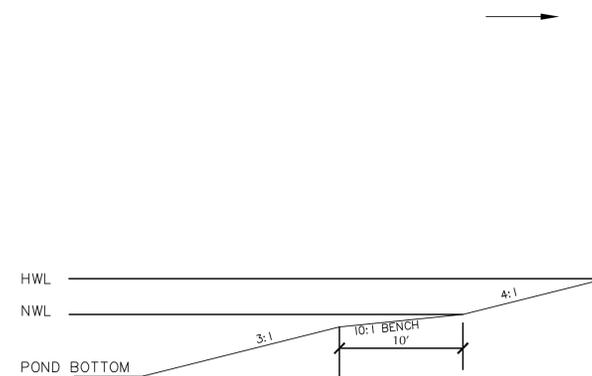


- GENERAL NOTES
- IN THE EVENT THAT SEDIMENT IS INTRODUCED INTO THE BMP DURING OR IMMEDIATELY FOLLOWING EXCAVATION, THIS MATERIAL SHALL BE REMOVED FROM THE PRACTICE PRIOR TO CONTINUING CONSTRUCTION.
 - GRADING OF BIORETENTION DEVICES SHALL BE ACCOMPLISHED USING LOW-COMPACTION EARTH-MOVING EQUIPMENT TO PREVENT COMPACTION OF UNDERLYING SOILS. ALL CONSTRUCTION OF BIORETENTION DEVICES SHOULD BE DONE FROM LOCATIONS OUTSIDE OF THE BIORETENTION DEVICE TO REDUCE COMPACTION OF SOILS, IF POSSIBLE.
 - ALL SUB MATERIALS BELOW THE SPECIFIED BIORETENTION DEPTH (ELEVATION) SHALL BE UNDISTURBED, UNLESS OTHERWISE NOTED.
- CONSTRUCTION SEQUENCING
- INSTALL SILT FENCE AND/OR OTHER APPROPRIATE TEMPORARY EROSION CONTROL DEVICES TO PREVENT SEDIMENT FROM LEAVING OR ENTERING THE PRACTICE DURING CONSTRUCTION.
 - PERFORM CONTINUOUS INSPECTIONS OF EROSION CONTROL PRACTICES.
 - INSTALL UTILITIES (WATER, SANITARY SEWER, ELECTRIC, PHONE, FIBER OPTIC, ETC) PRIOR TO SETTING FINAL GRADE OF BIORETENTION DEVICE.
 - ROUGH GRADE THE SITE. IF BIORETENTION AREAS ARE BEING USED AS TEMPORARY SEDIMENT BASINS LEAVE A MINIMUM OF 3 FEET OF COVER OVER THE PRACTICE TO PROTECT THE UNDERLYING SOILS FROM CLOGGING.
 - PERFORM ALL OTHER SITE IMPROVEMENTS. PLANT AND MULCH ALL AREAS AFTER DISTURBANCE.
 - CONSTRUCT BIORETENTION DEVICE UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA.
 - IMPLEMENT TEMPORARY AND PERMANENT EROSION CONTROL PRACTICES.
 - PLANT AND MULCH BIORETENTION DEVICE.
 - REMOVE TEMPORARY EROSION CONTROL DEVICES AFTER THE CONTRIBUTING DRAINAGE AREA IS ADEQUATELY VEGETATED.



MODIFIED DESIGN 'D' CURB & GUTTER

TYPICAL RESIDENTIAL STREET BITUMINOUS SECTION



POND CROSS SECTION

RIVER TOWN
VILLAS OF
HANOVER

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SUBMITTAL/REVISIONS

02/22/19 PRELIMINARY SUBMITTAL

PROFESSIONAL SIGNATURE

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

PRELIMINARY

Todd W. McLaughlin - PE

License No. 20383
Date

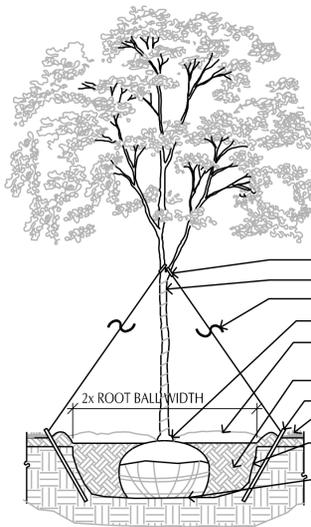
QUALITY CONTROL

Loucks Project No. 03128A
Project Lead TWMM
Drawn By KMM
Checked By TWMM
Review Date

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THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TREES IN A PLUMB POSITION THROUGH THE WARRANTY PERIOD. STAKING IS SUGGESTED, BUT NOT REQUIRED. ANY STAKING MUST CONFORM WITH PRACTICES AS DEFINED IN A.N.A. GUIDELINES FOR STANDARD PRACTICES

PRUNE DAMAGED AND CROSSING BRANCHES AFTER PLANTING IS COMPLETE.

CUT BACK WIRE BASKET

WATER TREE THOROUGHLY DURING PLANTING OPERATIONS. PLACE BACKFILL IN 8-12" LIFTS AND SATURATE SOIL WITH WATER. DO NOT COMPACT MORE THAN NECESSARY TO MAINTAIN PLUMB.

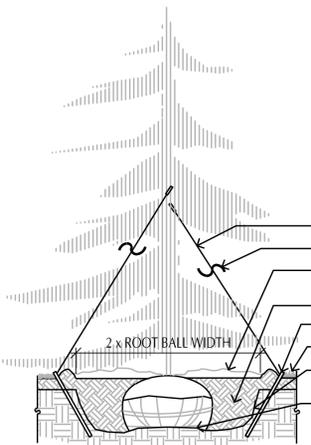
- 16"x2" POLYPROPYLENE OR POLYETHYLENE STRAP
- TREE WRAP TO FIRST BRANCH
- SAFETY FLAGGING - ONE PER WIRE
- ROOT FLARE EVEN WITH OR JUST ABOVE GRADE.
- MULCH - 4" DEEP. NO MULCH IN CONTACT WITH TRUNK - SEE NOTES OR SPECS.
- BACKFILL WITH IN SITU TOPSOIL
- WOOD STAKE (OPTIONAL)
- EDGE VARIES - SEE PLAN
- SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING
- SET PLANT ON UNDISTURBED NATIVE SOIL

CONTRACTOR IS RESPONSIBLE FOR TESTING PERCOLATION RATES PRIOR TO PLANTING. NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY IF POOR DRAINAGE EXISTS.

1 DECIDUOUS TREE PLANTING DETAIL

L1-1 SCALE: 1/2" = 1'-0"

Deciduous Tree.DWG



THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TREES IN A PLUMB POSITION THROUGH THE WARRANTY PERIOD. STAKING IS SUGGESTED, BUT NOT REQUIRED. ANY STAKING MUST CONFORM WITH PRACTICES AS DEFINED IN A.N.A. GUIDELINES FOR STANDARD PRACTICES.

PRUNE ANY DAMAGED BRANCHES AFTER PLANTING IS COMPLETE.

WATER TREE THOROUGHLY DURING PLANTING OPERATIONS. PLACE BACKFILL IN 8-12" LIFTS AND SATURATE SOIL WITH WATER. DO NOT COMPACT MORE THAN NECESSARY TO MAINTAIN PLUMB.

- 16"x2" POLYPROPYLENE OR POLYETHYLENE STRAP
- SAFETY FLAGGING - ONE PER WIRE
- MULCH - 4" DEEP - SEE NOTES OR SPECS. MULCH MUST NOT BE IN CONTACT WITH TRUNK.
- BACKFILL WITH IN SITU TOPSOIL
- WOOD STAKE (OPTIONAL)
- EDGE VARIES - SEE PLAN
- SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING
- ROOT BALL SET ON UNDISTURBED SUBGRADE

CONTRACTOR IS RESPONSIBLE FOR TESTING PERCOLATION RATES PRIOR TO PLANTING. NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY IF POOR DRAINAGE EXISTS.

2 CONIFEROUS TREE PLANTING DETAIL

L1-1 SCALE: 1/2" = 1'-0"

Coniferous Tree.DWG

GENERAL NOTES:

CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID. HE SHALL INSPECT SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS RELATING TO THE NATURE AND SCOPE OF WORK.

VERIFY LAYOUT AND ANY DIMENSIONS SHOWN AND BRING TO THE ATTENTION OF THE LANDSCAPE ARCHITECT ANY DISCREPANCIES WHICH MAY COMPROMISE THE DESIGN AND/OR INTENT OF THE PROJECT'S LAYOUT.

ASSURE COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS GOVERNING THE WORK OR MATERIALS SUPPLIED.

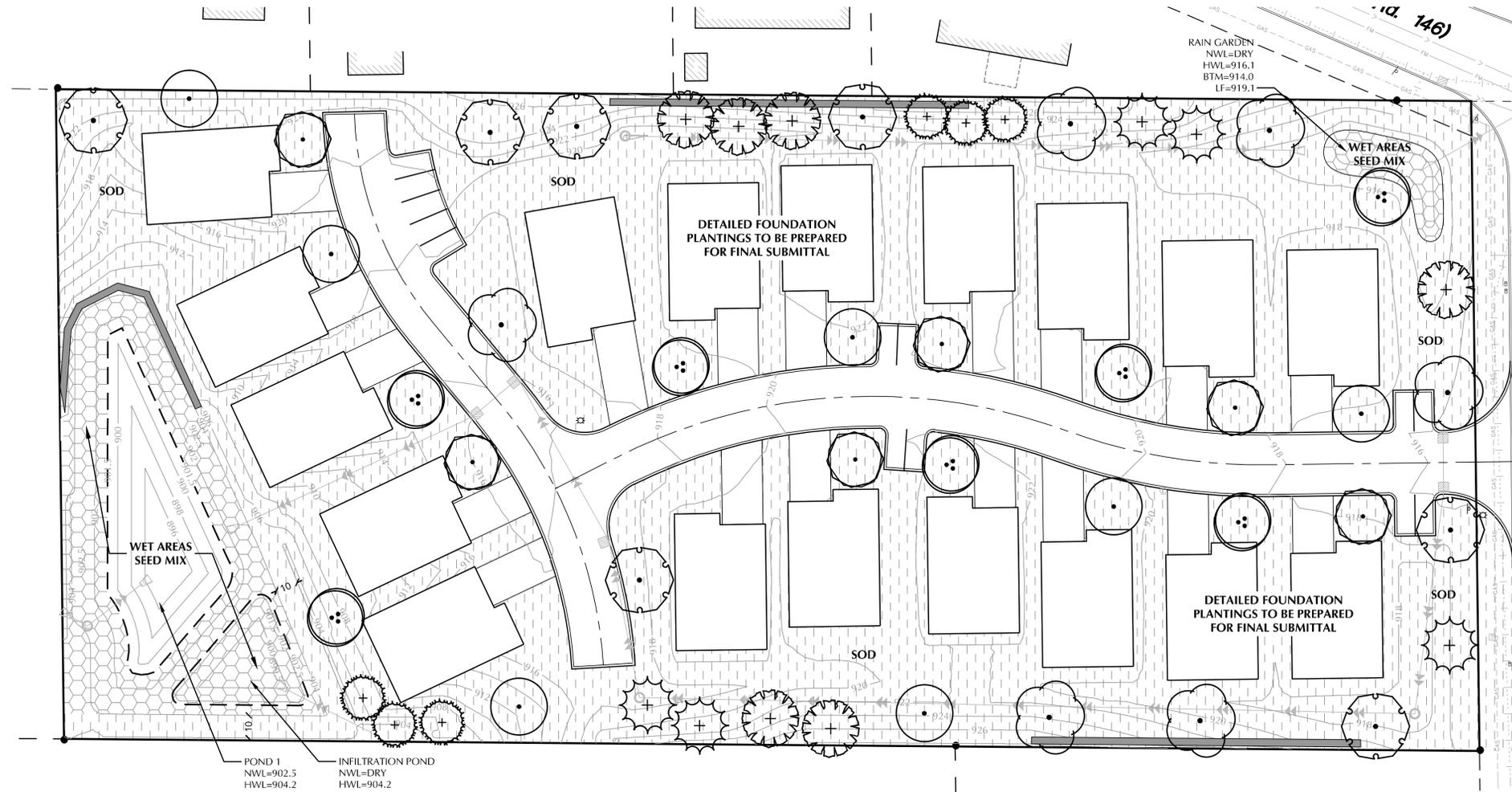
CONTRACTOR SHALL PROTECT ALL EXISTING ROADS, CURBS/GUTTERS, TRAILS, TREES, LAWNS AND SITE ELEMENTS DURING PLANTING OPERATIONS. ANY DAMAGE TO SAME SHALL BE REPAIRED AT NO COST TO THE OWNER.

CONTRACTOR SHALL VERIFY ALIGNMENT AND LOCATION OF ALL UNDERGROUND AND ABOVE GRADE UTILITIES AND PROVIDE THE NECESSARY PROTECTION FOR SAME BEFORE CONSTRUCTION / MATERIAL INSTALLATION BEGINS (MINIMUM 10' - 0" CLEARANCE).

ALL UNDERGROUND UTILITIES SHALL BE LAID SO THAT TRENCHES DO NOT CUT THROUGH ROOT SYSTEMS OF ANY EXISTING TREES TO REMAIN.

EXISTING CONTOURS, TRAILS, VEGETATION, CURB/GUTTER AND OTHER EXISTING ELEMENTS BASED UPON INFORMATION SUPPLIED TO LANDSCAPE ARCHITECT BY OTHERS. CONTRACTOR SHALL VERIFY ANY AND ALL DISCREPANCIES PRIOR TO CONSTRUCTION AND NOTIFY LANDSCAPE ARCHITECT OF SAME.

THE ALIGNMENT AND GRADES OF THE PROPOSED WALKS, TRAILS AND/OR ROADWAYS ARE SUBJECT TO FIELD ADJUSTMENT REQUIRED TO CONFORM TO LOCALIZED TOPOGRAPHIC CONDITIONS AND TO MINIMIZE TREE REMOVAL AND GRADING. ANY CHANGE IN ALIGNMENT MUST BE APPROVED BY LANDSCAPE ARCHITECT.



LANDSCAPE INSTALLATION:

COORDINATE THE PHASES OF CONSTRUCTION AND PLANTING INSTALLATION WITH OTHER CONTRACTORS WORKING ON SITE.

NO PLANTING WILL BE INSTALLED UNTIL COMPLETE GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.

WHERE SOD/SEED ABUTS PAVED SURFACES, FINISHED GRADE OF SOD/SEED SHALL BE HELD 1" BELOW SURFACE ELEVATION OF TRAIL, SLAB, CURB, ETC.

SEED ALL AREAS DISTURBED DUE TO GRADING OTHER THAN THOSE AREAS NOTED TO RECEIVE SOD. SEED SHALL BE INSTALLED AND MULCHED AS PER MNDOT SPECS.

SOD ALL DESIGNATED AREAS DISTURBED DUE TO GRADING. SOD SHALL BE LAID PARALLEL TO THE CONTOURS AND SHALL HAVE STAGGERED JOINTS. ON SLOPES STEEPER THAN 3:1 OR IN DRAINAGE SWALES, THE SOD SHALL BE STAKED TO THE GROUND.

ALL PLANT MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AMERICAN ASSOCIATION OF NURSERYMEN. UNLESS NOTED OTHERWISE, ALL SHRUBS SHALL HAVE AT LEAST 5 CANES AT THE SPECIFIED MINIMUM SHRUB HEIGHT OR WIDTH. ORNAMENTAL TREES SHALL HAVE NO V CROTCHES AND SHALL BEGIN BRANCHING NO LOWER THAN 3' ABOVE ROOT BALL. STREET AND BOULEVARD TREES SHALL BEGIN BRANCHING NO LOWER THAN 5' ABOVE FINISHED GRADE.

ANY CONIFEROUS TREE PREVIOUSLY PRUNED FOR CHRISTMAS TREE SALES SHALL NOT BE USED. ALL CONIFEROUS TREES SHALL BE FULL FORM, NATURAL TO THE SPECIES, WITHOUT PRUNING.

PLAN TAKES PRECEDENCE OVER PLANT SCHEDULE IF DISCREPANCIES IN QUANTITIES EXIST. SPECIFICATIONS TAKE PRECEDENCE OVER NOTES.

NO PLANT MATERIAL SUBSTITUTIONS WILL BE ACCEPTED UNLESS APPROVAL IS REQUESTED OF THE LANDSCAPE ARCHITECT BY THE LANDSCAPE CONTRACTOR PRIOR TO THE SUBMISSION OF A BID AND/OR QUOTATION.

ALL PROPOSED PLANTS SHALL BE LOCATED AND STAKED AS SHOWN ON PLAN. ADJUSTMENTS IN LOCATION OF PROPOSED PLANT MATERIALS MAY BE NEEDED IN FIELD. SHOULD AN ADJUSTMENT BE ADVISED, THE LANDSCAPE ARCHITECT MUST BE NOTIFIED.

ALL PLANT MATERIALS SHALL BE FERTILIZED UPON INSTALLATION WITH A 27-3-3 SLOW RELEASE FERTILIZER MIXED IN WITH THE PLANTING SOIL PER THE MANUFACTURER'S INSTRUCTIONS. PLANTS MAY BE TREATED FOR SUMMER AND FALL INSTALLATION WITH AN APPLICATION OF GRANULAR 27-3-3 AT 6 OZ PER 2.5" CALIPER PER TREE AND 3 OZ PER SHRUB WITH AN ADDITIONAL APPLICATION OF 27-3-3 THE FOLLOWING SPRING IN THE TREE SAUCER.

ALL PLANTING AREAS RECEIVING PERENNIALS, GROUND COVER, ANNUALS, AND/OR VINES SHALL RECEIVE A MINIMUM OF 12" DEPTH OF PLANTING SOIL CONSISTING OF 5 PARTS CLEAN TOPSOIL AND 1 PART PEAT. SHRUBS AND TREES TO BE BACKFILLED WITH SAME PLANTING SOIL.

ALL PLANTS TO BE INSTALLED AS PER PLANTING DETAILS. REMOVE ALL FLAGGING AND LABELS FROM PLANTS.

WRAPPING MATERIAL SHALL BE CORRUGATED PVC PIPING 1" GREATER IN CALIPER THAN THE TREE BEING PROTECTED OR QUALITY, HEAVY, WATERPROOF CREPE PAPER MANUFACTURED FOR THIS PURPOSE. WRAP ALL DECIDUOUS TREES PLANTED IN THE FALL PRIOR TO 12-1 AND REMOVE ALL WRAPPING AFTER 5-1.

BLACK POLY EDGER TO BE USED TO CONTAIN SHRUBS, PERENNIALS, AND ANNUALS WHERE BED MEETS SOD/SEED UNLESS NOTED OTHERWISE.

ALL ANNUAL AND PERENNIAL PLANTING BEDS TO RECEIVE 3" DEEP SHREDDED HARDWOOD MULCH WITH NO WEED BARRIER. ALL SHRUB BED MASSINGS TO RECEIVE 3" DEEP SHREDDED HARDWOOD MULCH AND FIBER MAT WEED BARRIER. ALL TREES TO RECEIVE 4" DEEP SHREDDED HARDWOOD MULCH WITH NO MULCH IN DIRECT CONTACT WITH TREE TRUNK.

SPREAD GRANULAR PRE EMERGENT HERBICIDE (GREEN OR EQUAL) PER MANUFACTURER'S RECOMMENDATIONS UNDER ALL MULCHED AREAS.

MAINTENANCE STRIPS TO HAVE EDGER AND MULCH AS SPECIFIED/INDICATED ON DRAWING OR IN SPECIFICATION.

IF THE LANDSCAPE CONTRACTOR IS CONCERNED OR PERCEIVES ANY DEFICIENCIES IN THE PLANT SELECTIONS, SOIL CONDITIONS OR ANY OTHER SITE CONDITION WHICH MIGHT NEGATIVELY AFFECT PLANT ESTABLISHMENT, SURVIVAL OR GUARANTEE, HE MUST BRING THESE DEFICIENCIES TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO PROCUREMENT AND/OR INSTALLATION.

CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST FOR THE OWNER ACCEPTANCE INSPECTION OF ALL LANDSCAPE AND SITE IMPROVEMENTS.

CONTRACTOR IS RESPONSIBLE FOR ON-GOING MAINTENANCE OF ALL NEWLY INSTALLED MATERIALS UNTIL TIME OF OWNER ACCEPTANCE. ANY ACTS OF VANDALISM OR DAMAGE WHICH MAY OCCUR PRIOR TO OWNER ACCEPTANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL PROVIDE THE OWNER WITH A MAINTENANCE PROGRAM INCLUDING, BUT NOT NECESSARILY LIMITED TO, PRUNING, FERTILIZATION AND DISEASE/PEST CONTROL.

CONTRACTOR SHALL GUARANTEE NEW PLANT MATERIAL THROUGH ONE CALENDAR YEAR FROM THE DATE OF OWNER ACCEPTANCE.

WARRANTY (ONE FULL GROWING SEASON) FOR LANDSCAPE MATERIALS SHALL BEGIN ON THE DATE OF ACCEPTANCE BY THE LANDSCAPE ARCHITECT AFTER THE COMPLETION OF PLANTING OF ALL LANDSCAPE MATERIALS. NO PARTIAL ACCEPTANCE WILL BE CONSIDERED.

UNLESS NOTED OTHERWISE THE APPROPRIATE DATES FOR SPRING PLANT MATERIAL INSTALLATION AND SEED/SOD PLACEMENT IS FROM THE TIME GROUND HAS THAWED TO JUNE 15.

FALL SODDING IS GENERALLY ACCEPTABLE FROM AUGUST 15 - NOVEMBER 1. FALL SEEDING FROM AUGUST 15 - SEPTEMBER 15; DORMANT SEEDING IN THE FALL SHALL NOT OCCUR PRIOR TO NOVEMBER 1. FALL CONIFEROUS PLANTING MAY OCCUR FROM AUGUST 15 - OCTOBER 1 AND DECIDUOUS PLANTING FROM THE FIRST FROST UNTIL NOVEMBER 15. PLANTING OUTSIDE THESE DATES IS NOT RECOMMENDED. ANY ADJUSTMENT MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.

PROTECT ALL EXISTING OAKS ON SITE SCHEDULED TO REMAIN. IF EXISTING OAKS ARE DAMAGED IN ANY MANNER, ABOVE OR BELOW GROUND IN THE ROOT SYSTEM, AN ASPHALTIC TREE PRUNING PAINT SHOULD BE APPLIED IMMEDIATELY AFTER WOUNDING. OAKS ARE NOT TO BE PRUNED, REMOVED OR TRANSPLANTED BETWEEN APRIL 15 AND JULY 1. NOTIFY LANDSCAPE ARCHITECT IF THESE DATES ARE UNAVOIDABLE.

LANDSCAPE CONTRACTOR SHALL ESTABLISH TO HIS SATISFACTION THAT SOIL AND COMPACTION CONDITIONS ARE ADEQUATE TO ALLOW FOR PROPER DRAINAGE AT AND AROUND THE BUILDING SITE.

GROUND COVER NOTES:

- SOD
- WET AREAS SEED MIXTURE

LANDSCAPE REQUIREMENTS:
TWO 2.5" CALIPER TREES REQUIRED PER DWELLING UNIT
18 DWELLING UNITS PROPOSED
36 TREES REQUIRED
50 TREES PROPOSED

PLANT SCHEDULE

DECIDUOUS TREES	QTY	COMMON NAME	BOTANICAL NAME	CONT	SIZE
	7	RIVER BIRCH CLUMP	Betula nigra	B & B	8' HGT
	7	SIENNA GLEN MAPLE	Acer freemanii 'Sienna Glen'	B & B	2.5" Cal
	6	SKYLINE HONEYLOCUST	Gleditsia triacanthos 'Skycole'	B & B	2.5" Cal
	7	SWAMP WHITE OAK	Quercus bicolor	B & B	2.5" Cal
	6	VALLEY FORGE ELM	Ulmus americana 'Valley Forge'	B & B	2.5" Cal
EVERGREEN TREES	QTY	COMMON NAME	BOTANICAL NAME	CONT	SIZE
	5	AUSTRIAN PINE FULL FORM	Pinus nigra	B & B	6' HGT
	6	BLACK HILLS SPRUCE FULL FORM	Picea glauca 'Densata'	B & B	6' HGT
	6	SCOTCH PINE FULL FORM	Pinus sylvestris	B & B	6' HGT



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SUBMITTAL/REVISIONS
02/22/19 PRELIMINARY SUBMITTAL

PROFESSIONAL SIGNATURE
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect in the State of Minnesota.
Timothy J. Fedie - LA 48303
Date

QUALITY CONTROL
Loucks Project No. 03128A
Project Lead TWM
Drawn By TJF
Checked By TJF
Review Date

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LANDSCAPE PLAN
L1-1

