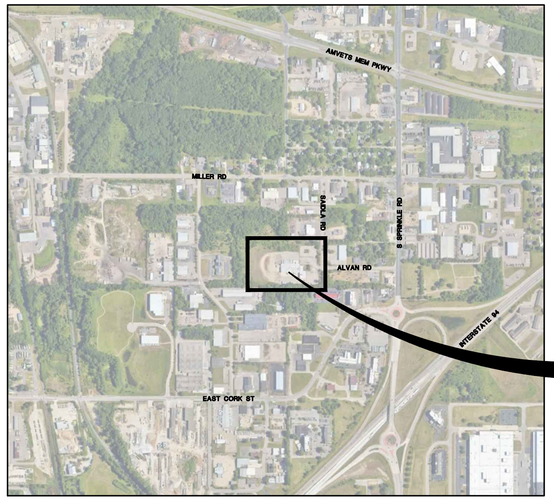
PROPOSED IMPROVEMENTS
for
OLD DOMINION FREIGHT LINE - KALAMAZOO
3600 ALVAN ROAD
CITY OF KALAMAZOO, MICHIGAN

Site Plan Review
Received 03/22/2024
City of Kalamazoo

STANDARD SYMBOLS

EXISTING		PROPOSED
	STORM SEWER	
	SANITARY SEWER	
	COMBINED SEWER	
FM	FORCEMAIN	FM
	DRAINTILE	
W	WATER MAIN	W
E	ELECTRIC	E
G	GAS	G
T	TELEPHONE	T
OH	OVERHEAD WIRES	OH
	SANITARY MANHOLE	
	STORM MANHOLE	
	CATCH BASIN	
	STORM INLET	
	CLEANOUT	
	RIP RAP	
	VALVE IN VAULT	
	VALVE IN BOX	
	FIRE HYDRANT	
	BUFFALO BOX	
	FLARED END SECTION	
	STREET LIGHT	
	SUMMIT / LOW POINT	S/L
795.20 / 790.25	RIM ELEVATION / INVERT ELEVATION	795.25 / 790.20
	DITCH OR SWALE	
	DIRECTION OF FLOW	
	OVERFLOW RELIEF SWALE	
764	1 FOOT CONTOURS	764
	CURB AND GUTTER	
	DEPRESSED CURB AND GUTTER	
	REVERSE CURB AND GUTTER	
	SIDEWALK	
	DETECTABLE WARNINGS	
	PROPERTY LINE	
	EASEMENT LINE	
	SETBACK LINE	
	MAIL BOX	
	SIGN	
	TRAFFIC SIGNAL	
	POWER POLE	
	GUY WIRE	
	GAS VALVE	
	HANDHOLE	
E	ELECTRICAL EQUIPMENT	
T	TELEPHONE EQUIPMENT	
	CHAIN-LINK FENCE	
792.8	SPOT ELEVATION	792.8 G
	BRUSH/TREE LINE	
16"	DECIDUOUS TREE WITH TRUNK DIA. IN INCHES (TBR)	16"
25'	CONIFEROUS TREE WITH HEIGHT IN FEET (TBR)	25'
S	SILT FENCE	S
	RETAINING WALL	
	WETLAND	



PROJECT LOCATION

LOCATION MAP
N.T.S.

INDEX OF SHEETS

LEGAL DESCRIPTION:

PARCEL DESCRIPTION (COMMITMENT NO. P39-12572):
COMMENCING AT THE EAST QUARTER CORNER OF SECTION 25, TOWN 2 SOUTH, RANGE 11 WEST; THENCE WEST ABOUT 1332 FEET ALONG THE NORTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION TO THE EAST LINE OF THE NORTHWEST QUARTER OF SAID SOUTHEAST QUARTER; THENCE SOUTHERLY ABOUT 720 FEET ALONG SAID EAST LINE TO A POINT NORTHERLY 594.00 FEET FROM THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER OF THE SOUTHEAST QUARTER AND THE PLACE OF BEGINNING; THENCE WESTERLY 530 FEET PARALLEL WITH THE SOUTH LINE OF SAID NORTHWEST QUARTER OF THE SOUTHEAST QUARTER, THENCE SOUTHERLY 594.00 FEET PARALLEL WITH SAID EAST LINE TO SAID SOUTH LINE; THENCE EASTERLY 530.00 FEET ALONG SAID SOUTH LINE TO SAID SOUTHEAST CORNER OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER; THENCE CONTINUING EASTERLY 389.50 FEET ALONG THE SOUTH LINE OF THE NORTHEAST QUARTER OF SAID SOUTHEAST QUARTER TO THE SOUTHERLY EXTENSION OF A WEST RIGHT-OF-WAY LINE OF SAIDLA ROAD ACCORDING TO DEED RECORDED IN LIBER 1553, PAGE 199, KALAMAZOO COUNTY RECORDS; THENCE NORTHERLY 554.07 FEET ALONG SAID SOUTHERLY EXTENSION AND ALONG SAID WEST RIGHT-OF-WAY LINE PARALLEL WITH SAID EAST LINE; THENCE WESTERLY 389.50 FEET PARALLEL WITH SAID SOUTH LINE OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER TO SAID EAST LINE; THENCE NORTHERLY 39.93 FEET ALONG SAID EAST LINE TO THE PLACE OF BEGINNING.

(DESCRIPTION BY OTHERS: SURVEY 35450, DATED NOVEMBER 21, 2007, BASED ON COMMITMENT NO. P39-12572)

BENCHMARKS:

SITE BENCHMARK #4:
SET BENCHMARK ON FLANGE BOLT UNDER O ON HYDRANT AT NORTHEAST CORNER OF SITE. LOCATED 292'± NORTH OF THE NORTH EDGE OF EXISTING BUILDING ON SITE EXTENDED AND
24'± WEST OF THE CENTERLINE OF ALVAN ROAD.

ELEVATION = 820.54 (NAVD88)

SITE BENCHMARK#3024:
SET BENCHMARK ON FLANGE BOLT ON HYDRANT NEAR SOUTHERLY FENCE, 432'± EAST OF SOUTHWEST CORNER OF SITE. LOCATED 12'± SOUTH OF EDGE OF GRAVEL PARKING LOT AND
23.5'± WEST OF THE WEST SIDE OF EDGE OF ASPHALT PARKING LOT.

ELEVATION = 837.84 (NAVD88)

NOTE:

THE BOUNDARY LINES AND TOPOGRAPHY FOR THIS PROJECT ARE BASED ON A SURVEY PREPARED BY NEDERVELD, INC. DATED OCTOBER OF 2023. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY MANHARD CONSULTING AND THE CLIENT IN WRITING OF ANY DIFFERING CONDITIONS. MANHARD CONSULTING HAS NOT VERIFIED THIS SURVEY AND IS NOT RESPONSIBLE FOR THE ACCURACY OF THE SURVEY BOUNDARY AND/OR TOPOGRAPHY.

DEVELOPER:	OLD DOMINION FREIGHT LINE, INC
ADDRESS:	13135 NORTH EXECUTIVE DRIVE
CITY:	EDINBURG, IN 46124
CONTACT:	JERRY CANADA
PHONE:	(317) 494-1278

ENGINEER:	MANHARD CONSULTING
ADDRESS:	333 EAST BUTTERFIELD SUITE 600
CITY:	LOMBARD, IL 60148
CONTACT:	JOE IOVINELLI
PHONE:	(630) 925-1110

ARCHITECT:	MOLLENKPOF DESIGN GROUP, LLC
ADDRESS:	49 MUSIC SQUARE W. SUITE 600
CITY:	NASHVILLE, TN 37203
CONTACT:	ANDY DONNELLY
PHONE:	(615) 296-9146

ABBREVIATIONS

ADJ	ADJUST	F/L	FLOW LINE	R.O.W.	RIGHT-OF-WAY
AGG.	AGGREGATE	FM	FORCE MAIN	RCP	REINFORCED CONCRETE PIPE
ARCH	ARCHITECT	G	GROUND	REM	REMOVAL
B.A.M.	BITUMINOUS AGGREGATE MIXTURE	G/F	GRADE AT FOUNDATION	REV	REVERSE
B-B	BACK TO BACK	GW	GUY WIRE	RR	RAILROAD
B/C	BACK OF CURB	HDWL	HEADWALL	RT	RIGHT
B/P	BOTTOM OF PIPE	HH	HANDHOLE	SAN	SANITARY
B/W	BACK OF WALK	HWL	HIGH WATER LEVEL	SF	SQUARE FOOT
B-BOX	BUFFALO BOX	HYD	HYDRANT	SHLD.	SHOULDER
BIT.	BITUMINOUS	INL	INLET	SL	STREET LIGHT
BM	BENCHMARK	INV	INVERT	SMH	SANITARY MANHOLE
B.O.	BY OTHERS	IP	IRON PIPE	ST	STORM
C.E.	COMMERCIAL ENTRANCE	LT	LEFT	STA.	STATION
CB	CATCH BASIN	MAX.	MAXIMUM	STD	STANDARD
℄	CENTERLINE	MB	MAILBOX	SW	SIDEWALK
CMP	CORRUGATED METAL PIPE	M/E	MEET EXISTING	SY	SQUARE YARDS
CNTRL	CONTROL	MH	MANHOLE	TBR	TO BE REMOVED
CO	CLEANOUT	MIN.	MINIMUM	T	TELEPHONE
CONC.	CONCRETE	NWL	NORMAL WATER LEVEL	T-A	TYPE A
CY	CUBIC YARD	P.E.	PRIVATE ENTRANCE	T/C	TOP OF CURB
D	DITCH	PC	POINT OF CURVATURE	T/F	TOP OF FOUNDATION
DIA.	DIAMETER	PCC	POINT OF COMPOUND CURVE	T/P	TOP OF PIPE
DIP	DUCTILE IRON PIPE	PGL	PROFILE GRADE LINE	T/W	TOP OF WALK
DIWM	DUCTILE IRON WATER MAIN	PI	POINT OF INTERSECTION	T/WALL	TOP OF WALL
DS	DOWNSPOUT	ℙ	PROPERTY LINE	TEMP	TEMPORARY
DT	DRAIN TILE	PP	POWER POLE	TRANS	TRANSFORMER
E	ELECTRIC	PROP.	PROPOSED	V.B.	VALVE BOX
E-E	EDGE TO EDGE	PT	POINT OF TANGENCY	VCP	VITRIFIED CLAY PIPE
ELEV.	ELEVATION	PVC	POLYVINYL CHLORIDE PIPE	V.V.	VALVE VAULT
E/P	EDGE OF PAVEMENT	PVC	POINT OF VERTICAL CURVATURE	WL	WATER LEVEL
EX.	EXISTING	PVI	POINT OF VERTICAL INTERSECTION	WM	WATER MAIN
F.O.	FIELD ENTRANCE	PVT	POINT OF VERTICAL TANGENCY		
F-F	FACE TO FACE	P	PAVEMENT		
F.F.	FINISHED FLOOR	P.U.D.E.	PUBLIC UTILITY & DRAINAGE EASEMENT		
FES	FLARED END SECTION	R	RADIUS		

MANHARD CONSULTING IS NOT RESPONSIBLE FOR THE SAFETY OF ANY PARTY AT OR ON THE CONSTRUCTION SITE. SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND ANY OTHER PERSON OR ENTITY PERFORMING WORK OR SERVICES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR THE JOB SITE SAFETY OF PERSONS ENGAGED IN THE WORK OR THE MEANS OR METHODS OF CONSTRUCTION.

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UTILITY CONTACTS
WATER AND SEWER
CITY OF KALAMAZOO
241 W SOUTH STREET
KALAMAZOO, MI 49007
CONTACT: TERESA JOHNSON
PHONE: (269) 337-8000

STATE OF MICHIGAN
JOE IOVINELLI
License No. 6201310239
LICENSED PROFESSIONAL ENGINEER
03/21/2024
EXP. 11/30/2025
SEAL

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OLD DOMINION FREIGHT LINE - KALAMAZOO
CITY OF KALAMAZOO, MICHIGAN
TITLE SHEET

PROJ. MGR.:	JAR
PROJ. ASSOC.:	AJH
DRAWN BY:	ALM
DATE:	03/21/2024
SCALE:	N.T.S.

SHEET 1 OF 10
ODF.KAMI.01

PENDING APPROVAL - NOT FOR CONSTRUCTION

March 13, 2024 - 12:40 Dwg Name: P:\Odfkami01\dwg\Engr\Final Drawings\Plan Set\Construction Documents\COVER SHEET.dwg Updated By: Chiarmon

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06-01-16

EXISTING CONDITIONS AND DEMOLITION NOTES:

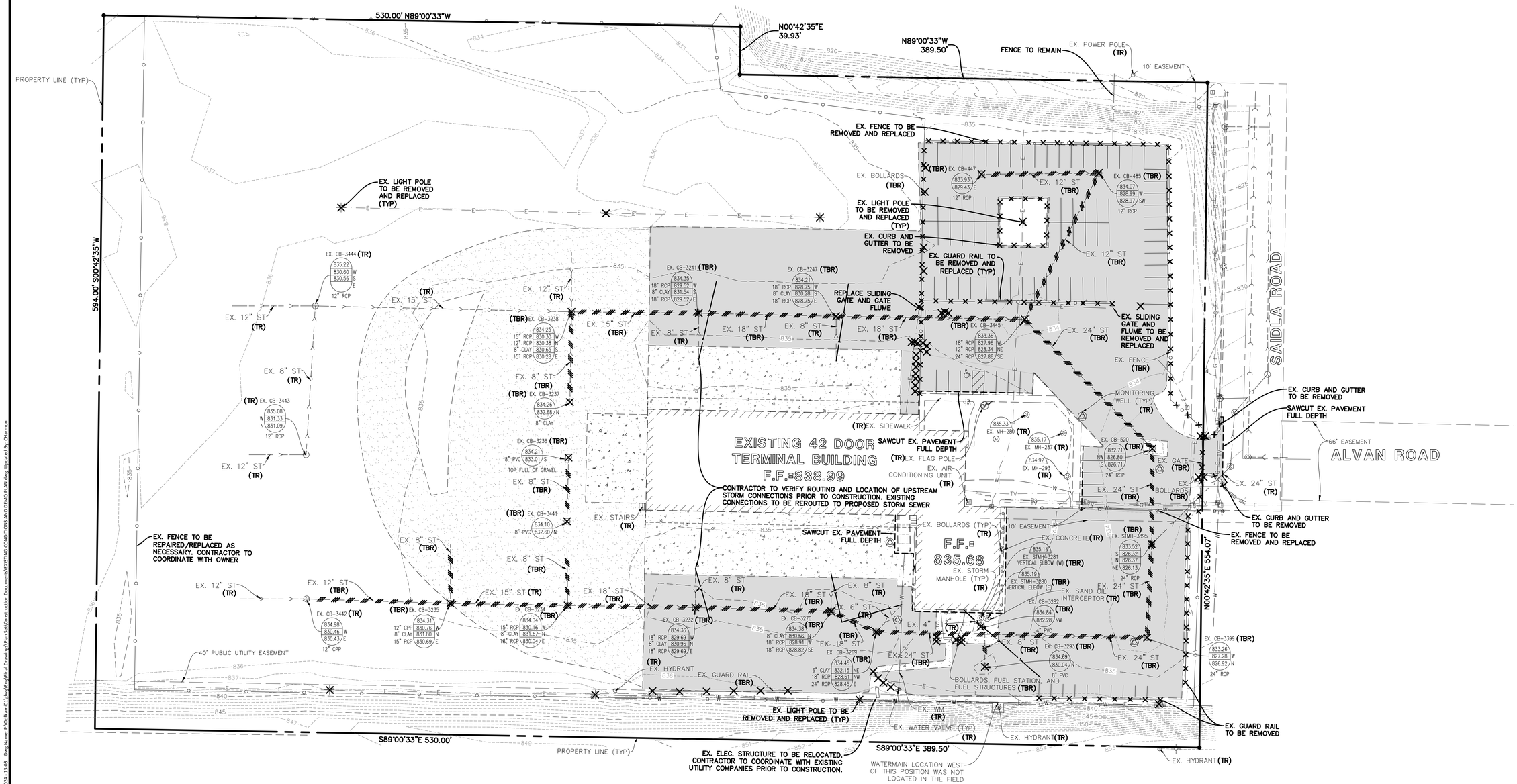
1. EXISTING TOPOGRAPHY SHOWN REPRESENTS SITE CONDITIONS AS PREPARED BY OTHERS ON OCTOBER 2023. CONTRACTOR SHALL INSPECT SITE PRIOR TO BIDDING WORK TO VERIFY ACTUAL FIELD CONDITIONS AS PORTIONS OF THE DEMOLITION WORK MAY HAVE SINCE BEEN COMPLETED. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLETE ALL DEMOLITION WORK AS PER PLANS TO PREPARE THE SITE FOR CONSTRUCTION OF PROPOSED IMPROVEMENTS.
2. THE UNDERGROUND UTILITY INFORMATION AS SHOWN HEREON IS BASED, IN PART, UPON INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED NOR CERTIFIED TO.
3. THE CONTRACTOR IS RESPONSIBLE FOR DEMOLITION, REMOVAL AND DISPOSAL (IN A LOCATION APPROVED BY ALL JURISDICTIONAL GOVERNING ENTITIES) OF ALL STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, ROAD, PARKING LOTS, DRIVES, DRAINAGE STRUCTURES, UTILITIES, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THESE PLANS CAN BE CONSTRUCTED. ALL DEMOLITION WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER THE SPECIFICATIONS.
4. REFER TO SPECIFICATIONS SHEET FOR DEMOLITION NOTES.

DEMOLITION LEGEND

- BITUMINOUS PAVEMENT AND BASE TO BE REMOVED
- CONCRETE PAVEMENT AND BASE TO BE REMOVED
- AGGREGATE TO BE REMOVED
- SAWCUT LINE
- FENCE, RETAINING WALL, RAILROAD TIES, POLES, CURB AND GUTTER, ETC. TO BE REMOVED
- UTILITY STRUCTURE TO BE REMOVED
- UTILITY LINE REMOVAL, FILL OR ABANDONMENT (REFER TO SPECIFICATIONS)
- (TBR) TO BE REMOVED
- (TR) TO REMAIN

N

0 20 40 80
SCALE: 1"=40'



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OLD DOMINION FREIGHT LINE - KALAMAZOO
CITY OF KALAMAZOO, MICHICAN
EXISTING CONDITIONS AND DEMOLITION PLAN

PROJ. MGR.:	JAR
PROJ. ASSOC.:	AJH
DRAWN BY:	JDP
DATE:	03/21/2024
SCALE:	1"=40'

SHEET 2 OF 10
ODF.KAMI.01

PENDING APPROVAL - NOT FOR CONSTRUCTION

March 15, 2024 13:03 Dwg Name: P:\Odf\kami01\dwg\Eng\Final Drawings\Plan Set\Construction Documents\EXISTING CONDITIONS AND DEMO PLAN.dwg Updated By: Chiarnon

06-01-16

CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE AT LOCATIONS AS INDICATED ON THE PLANS.
2. PROVIDE STABILIZED CONSTRUCTION ENTRANCE.
3. CONSTRUCT TEMPORARY DITCHES, SWALES, SEDIMENT TRAPS AND/OR BASINS.
4. STRIP EXISTING TOPSOIL FROM PROPOSED LIMITS OF DISTURBANCE AND STOCKPILE WHERE SHOWN ON PLANS.
5. PROVIDE SILT FENCE AROUND THE BASE OF THE STOCKPILES.
6. CONSTRUCT STORMWATER MANAGEMENT (DETENTION) FACILITIES TO SUB-GRADE AND INSTALL OUTLET PIPES.
7. COMPLETE TOPSOIL PLACEMENT AND PERMANENT SEEDING AND SODDING OF STORMWATER MANAGEMENT FACILITIES.
8. CUT AND FILL SITE TO PLAN SUB-GRADE.
9. CONSTRUCT UNDERGROUND IMPROVEMENTS, i.e. SANITARY SEWER WATERMAIN AND STORM SEWER**, ETC.
10. CONSTRUCT PAVEMENT IMPROVEMENTS PER PLAN.
11. COMPLETE CONSTRUCTION OF SITE WITH PERMANENT STABILIZATION.
12. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.

** INSTALL INLET PROTECTION AROUND DRAINAGE STRUCTURES AS CONSTRUCTED.

06-01-16

LEGEND

- S—S— TEMPORARY SILT FENCE (PERIMETER EROSION BARRIER)
- EROSION CONTROL BLANKET (NORTH AMERICAN GREEN DS 75) (SEEDING PER LANDSCAPE PLAN)
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
- TEMPORARY STORM STRUCTURE PROTECTION
- TEMPORARY PERFORATED RISER
- PAVEMENT DRAINAGE FLOW
- LIMITS OF DISTURBANCE/CONSTRUCTION

06-01-16

SOIL EROSION AND SEDIMENTATION CONTROL GENERAL NOTES:

1. ALL VEGETATIVE AND STRUCTURAL EROSION CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE "ILLINOIS URBAN MANUAL".
2. MAINTENANCE AND REPLACEMENT OF EROSION CONTROL ITEMS, WHEN DIRECTED BY THE OWNER, SHALL BE CONSIDERED AS INCIDENTAL TO THE CONTRACT.
3. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES OR GREATER, OR EQUIVALENT SNOWFALL, WHEN THE SNOW MELTS AND THERE IS POTENTIAL FOR EROSION. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF SAID MEASURES SHALL BE MADE IMMEDIATELY.
4. INSTALL ALL PERIMETER SILT FENCING PRIOR TO ANY CLEARING OR GRADING. ONSITE SEDIMENT CONTROL MEASURES AS SHOWN AND SPECIFIED BY THIS EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE CONSTRUCTED AND FUNCTIONAL PRIOR TO INITIATING CLEARING, GRADING, STRIPPING, EXCAVATION OR FILLING ACTIVITIES ON THE SITE.
5. STORM WATERS FALLING ON THE ENTIRE SITE SHALL BE DIVERTED INTO THE DETENTION BASIN, PRIOR TO BEGINNING MASS EXCAVATION, THE CONTRACTOR SHALL CONSTRUCT DITCHES, SWALES, SEDIMENTATION TRAPS AND SILTATION CONTROL MEASURES AS REQUIRED TO INTERCEPT SURFACE WATERS BEFORE THEY FLOW ONTO ADJACENT PROPERTY AND CONVEY THEM TO THE DETENTION BASIN.
6. IF STORMWATER DETENTION IS NOT REQUIRED THE CONTRACTOR SHALL CONSTRUCT DITCHES, SWALES, SEDIMENT TRAPS AND SILTATION CONTROL MEASURES AS REQUIRED TO INTERCEPT SURFACE WATERS BEFORE THEY FLOW ONTO ADJACENT PROPERTY.
7. STABILIZATION OF DISTURBED AREAS MUST BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING OR OTHER EARTH DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION OF DISTURBED AREAS MUST BE INITIATED WITHIN 1 WORKING DAY OF PERMANENT OR TEMPORARY CESSATION OF EARTH DISTURBING ACTIVITIES AND SHALL BE COMPLETED AS SOON AS POSSIBLE BUT NOT LATER THAN 14 DAYS FROM THE INITIATION OF STABILIZATION WORK IN AN AREA.

   TEMPORARY SEED MIXTURE SHALL BE APPLIED AT 64 LBS/ACRE.
8. INLET PROTECTION SHALL BE INSTALLED UNDER THE GRATING OF EACH DRAINAGE STRUCTURE.
9. STABILIZATION OF TOPSOIL STOCKPILES SHALL BE INITIATED IMMEDIATLEY UPON COMPLETION UNLESS THEY WILL BE DISTURBED WITHIN FOURTEEN (14) CALENDAR DAYS. STABILIZATION OF STOCKPILES MUST BE INITIATED WITHIN 1 WORKING DAY OF PERMANENT OR TEMPORARY CESSATION OF EARTH DISTURBING ACTIVITIES AND SHALL BE COMPLETED AS SOON AS POSSIBLE BUT NOT LATER THAN 14 DAYS FROM THE INITIATION OF STABILIZATION WORK IN AN AREA. ALL SOIL STORAGE PILES SHALL BE PROTECTED FROM EROSION WITH SILT FENCE ON THE DOWN SLOPE SIDE OF THE PILES.
10. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO SEDIMENT BASINS OR SILT TRAPS. DEWATERING DIRECTLY INTO FIELD TILES OR STORMWATER STRUCTURES IS PROHIBITED.
11. WATER PUMPED DURING CONSTRUCTION OPERATION SHALL BE FILTERED.
12. DUST CONTROL SHALL BE PERFORMED ON A DAILY BASIS USING WATER DISPERSED FROM A TRUCK MOUNTED TANK WITH STANDARD DISCHARGE HEADER TO PROVIDE A UNIFORM RATE OF APPLICATION.
13. TEMPORARY GRAVEL CONSTRUCTION ENTRANCES SHALL BE MAINTAINED, ADJUSTED OR RELOCATED AS NECESSARY TO PREVENT SEDIMENT FROM BEING TRACKED ONTO PUBLIC ROADWAYS. ANY SEDIMENT REACHING A PUBLIC ROAD SHALL BE REMOVED BY SHOVELING OR STREET CLEANING BEFORE THE END OF EACH WORKING DAY.
14. ANY LOOSE MATERIAL THAT IS DEPOSITED IN THE FLOW LINE OF ANY GUTTER OR DRAINAGE STRUCTURE DURING CONSTRUCTION OPERATIONS SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY.
15. OVERLAND FLOW SHALL BE DIRECTED TO THE DETENTION BASIN PRIOR TO LEAVING THE SITE.
16. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE CLIENT OR OTHER JURISDICTIONAL GOVERNMENTAL ENTITIES.
17. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ALL JURISDICTIONAL GOVERNMENTAL AGENCY REQUIREMENTS WITHIN 30 DAYS OF FINAL STABILIZATION.

SOIL PROTECTION CHART

STABILIZATION CHART	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PERMANENT SEEDINGS			A			*	*		*			
DORMANT SEEDINGS	B	←							←	B	→	
TEMPORARY SEEDINGS			C						→			
TEMPORARY SEEDINGS	D								→			
SODDING			E**						→			
MULCHING	F								→			

A – KENTUCKY BLUEGRASS 90 LBS./AC. MIXED WITH PERENNIAL RYEGRASS 30 LBS./AC.

B – KENTUCKY BLUEGRASS 135 LBS./AC. MIXED WITH PERENNIAL RYEGRASS 45 LBS./AC. 2 TONS STRAW MULCH PER ACRE

C – SPRING OATS

D – WHEAT OR CEREAL RYE

E – SOD (NURSERY GROWN KENTUCKY BLUEGRASS)

F – STRAW MULCH 2 TONS PER ACRE

* IRRIGATION NEEDED DURING JUNE, JULY AND SEPTEMBER

** IRRIGATION NEEDED FOR 2-3 WEEKS AFTER SODDING

NOTE: THIS CHART IS A GUIDE TO ASSISTS THE CONTRACTOR IN UNDERSTANDING OPTIONS FOR SOIL STABILIZATION. THE LANDSCAPE PLAN SHALL TAKE PRECEDENCE OVER THIS CHART. ANY CONFLICT SHALL BE DISCUSSED WITH THE LANDSCAPE ARCHITECT PRIOR TO THE START OF CONSTRUCTION.

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Red	ELECTRIC	Brown	SEWER
White	PROPOSED EXCAVATION	Pink	SURVEYING

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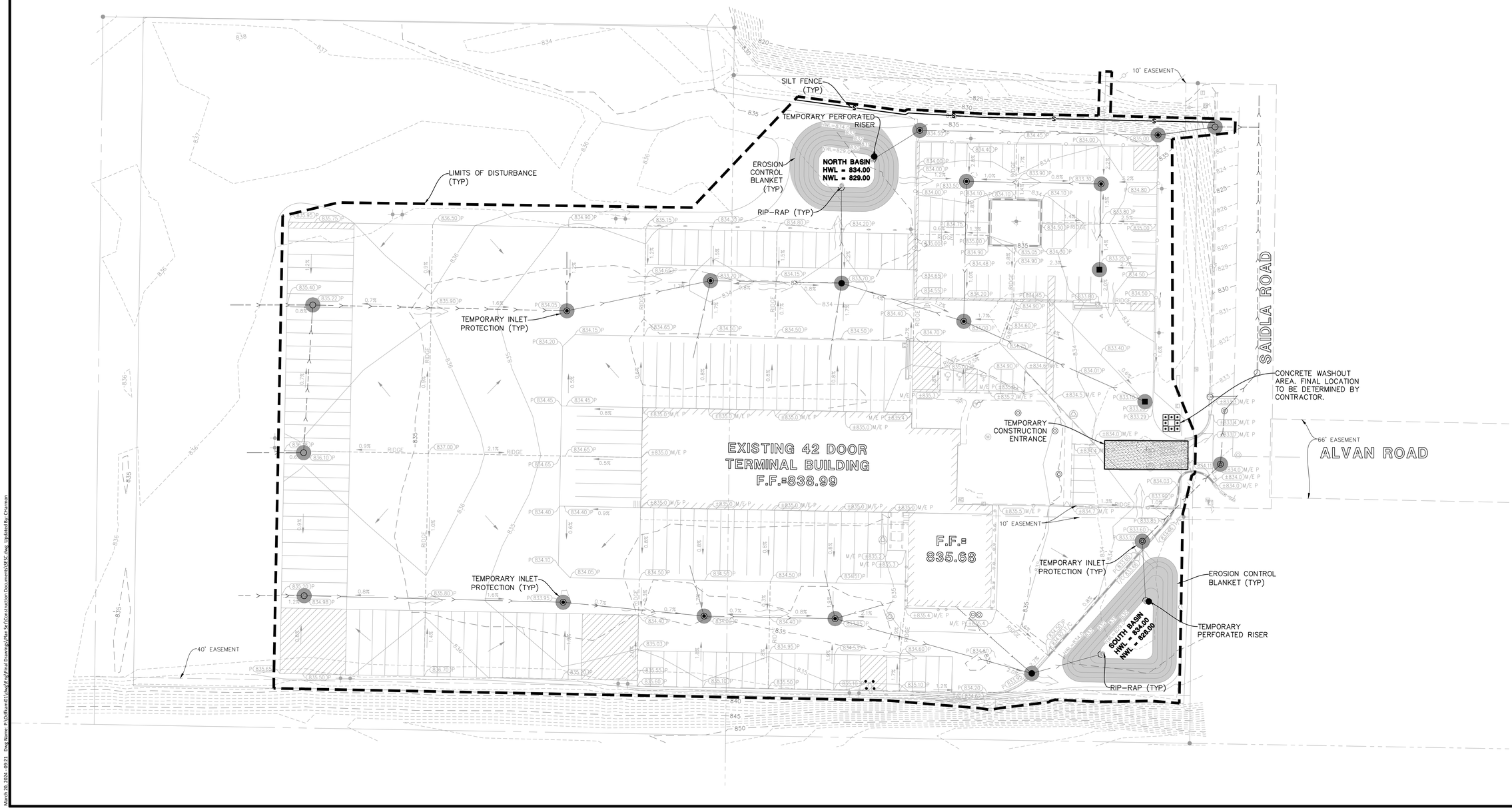
"THESE EROSION CONTROL PLANS ARE A PORTION OF THE MICHIGAN ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE). TOTAL REQUIREMENTS FOR A COMPLETE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AS REQUIRED BY THE GENERAL NPDES PERMIT. CLIENT AND/OR CONTRACTOR WILL BE RESPONSIBLE FOR COMPLIANCE WITH ALL REQUIREMENTS OF THE GENERAL NPDES PERMIT AND COMPILATION OF THE COMPLETE SWPPP."

N

0 20 40 80
SCALE: 1"=40'



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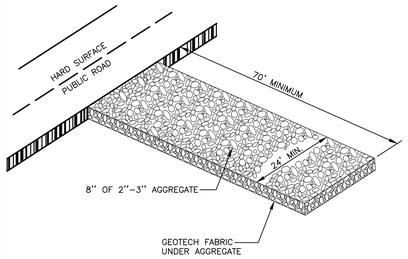
OLD DOMINION FREIGHT LINE - KALAMAZOO
CITY OF KALAMAZOO, MICHICAN
SOIL EROSION AND SEDIMENT CONTROL PLAN

PROJ. MGR.: JAR
PROJ. ASSOC.: AJH
DRAWN BY: ____
DATE: 03/21/2024
SCALE: 1"=40'

SHEET 3 OF 10
ODF.KAMI.01

PENDING APPROVAL - NOT FOR CONSTRUCTION

March 20, 2024 - 09:21 Dwg Name: P:\Odf\kami01\dwg\Eng\Final Drawings\Plan Set\Construction Document\SESC.dwg Updated By: Chrmmon



NOTE:
PERIODIC TOP DRESSING OF THE CONSTRUCTION EXIT MAY BE REQUIRED TO PREVENT TRACK OUT.

03-08-24

GRAVEL CONSTRUCTION ACCESS DETAIL

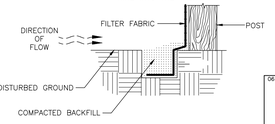
ODFKAM01

1. SET 2"X2"X36" POSTS 12" INTO THE GROUND & EXCAVATE A 4"X4" TRENCH ALONG THE LINE OF POSTS.

2. ATTACH THE FILTER FABRIC TO POST AND EXTEND IT INTO THE TRENCH.

3. BACKFILL AND COMPACT THE EXCAVATED SOIL.

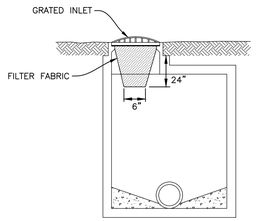
CROSS SECTION OF FABRIC AND WIRE INTO THE TRENCH.



06-01-17

SILT FENCE DETAIL

S-EC-SILT FENCE

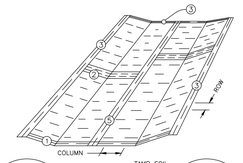


NOTE:
1. CONTRACTOR HAS THE OPTION OF USING A MANUFACTURED PRODUCT SUCH AS DANDY BAG, IPP INLET FILTER, FLEXSTORM OR APPROVED EQUAL.
2. FOR CURB STRUCTURES, CONTRACTOR HAS THE OPTION OF USING A MANUFACTURED PRODUCT SUCH AS DANDY CURB SACK OR APPROVED EQUAL.

06-01-15

FILTER BASKET INLET SEDIMENT FILTER

EC-ST-FB-INLETPROTECT



TERMINAL FOLD
JUTE MESH ONLY

DETAIL 1

TERMINAL FOLD
EXCELSIOR BLANKET
EROSION CONTROL PAPER

JUNCTION SLOT
JUTE MESH
EROSION CONTROL PAPER

DETAIL 2

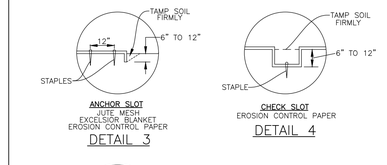
JUNCTION SLOT
EXCELSIOR BLANKET

U.S. DEPARTMENT OF AGRICULTURE

06-01-17

EROSION BLANKET PLAN

S-EC-EROSION-BLANKET1



ANCHOR SLOT
JUTE MESH
EXCELSIOR BLANKET
EROSION CONTROL PAPER

CHECK SLOT
EROSION CONTROL PAPER

DETAIL 4

LAP JOINT
JUTE MESH
EROSION CONTROL PAPER
EXCELSIOR BLANKET SHALL BE BUTTED TOGETHER

STAPLE DETAIL

DETAIL 5

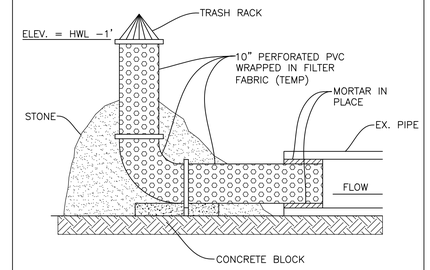
1. ON EROSION CONTROL PAPER, CHECK SLOTS, IN DITCH CHANNEL SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%, SLOPES OF 6% OR MORE, SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. STAPLES TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED. PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
3. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
4. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

U.S. DEPARTMENT OF AGRICULTURE

06-01-17

EROSION BLANKET PLAN

S-EC-EROSION-BLANKET

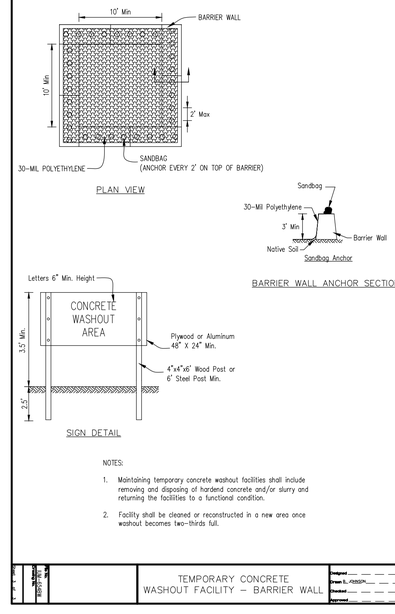


NOTE:
MAINTAIN RISER FOR DURATION OF CONSTRUCTION.

03-08-24

TEMPORARY PERFORATED RISER

ODFKAM01



NOTES:
1. Maintaining temporary concrete washout facilities shall include removing and disposing of hardend concrete and/or slurry and returning the facilities to a functional condition.
2. Facility shall be cleaned or reconstructed in a new area once washout becomes two-thirds full.

TEMPORARY CONCRETE WASHOUT FACILITY – BARRIER WALL

SHOULD A CONFLICT ARISE BETWEEN MANHARD DETAILS AND THE VILLAGE DETAILS, THE VILLAGE DETAILS SHALL TAKE PRECEDENCE.

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DRAWN BY	REVISIONS	DATE

OLD DOMINION FREIGHT LINE - KALAMAZOO

CITY OF KALAMAZOO, MICHICAN

SOIL EROSION AND SEDIMENT CONTROL DETAILS

PROJ. MGR.: JAR
PROJ. ASSOC.: AJH
DRAWN BY: ALM
DATE: 03/21/2024
SCALE: N.T.S.

SHEET 4 OF 10
ODF.KAMI.01

PENDING APPROVAL - NOT FOR CONSTRUCTION

PARKING BREAKDOWN		
	EXISTING	PROPOSED
EMPLOYEE PARKING	77 SPACES	73 SPACES
ACCESSIBLE PARKING	1 SPACE	3 SPACES
TRACTOR PARKING	0	25 SPACES
PUP PARKING	0	17 SPACES
VAN PARKING	0	47 SPACES

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS-DIG®
1-800-482-7171
ALTERNATE NUMBER (248) MISS-DIG
COLOR CODES FOR UTILITY LOCATING:

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
White	PROPOSED EXCAVATION	Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES ... CALL MISS DIG

PAVEMENT MARKING LEGEND	
Ⓐ	4" YELLOW LINE
Ⓑ	6" SOLID WHITE
Ⓒ	LETTERS AND SYMBOLS PAVEMENT MARKINGS
Ⓓ	4" YELLOW DIAGONAL AT 45° SPACED 2' O.C. W/ 4" YELLOW BORDER

SITE DATA	
GROSS SITE AREA	530,600 S.F. (12.18 ACRES)
PARKING PROVIDED	163 SPACES
HANDICAP REQUIRED	3 SPACES
HANDICAP PROVIDED	3 SPACES
PARKING RATIO	0.3 SPACES/1000 S.F.
BUILDING AREA	27,524 S.F.
ASPHALT/CONCRETE AREA	248,000 S.F.
TOTAL IMPERVIOUS AREA	288,600 S.F.
TOTAL PERVIOUS AREA	252,000 S.F.
EXISTING ZONING	M-1 MANUFACTURING (LIMITED)

CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION OF SIDEWALKS, SIDEWALK SCORING, BENCHES, BIKE RACKS, FLAG POLES, ETC., DIMENSIONS OF VESTIBULE, RAMPS AND TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT UTILITY ENTRANCE LOCATIONS

06-01-16 06-20-16

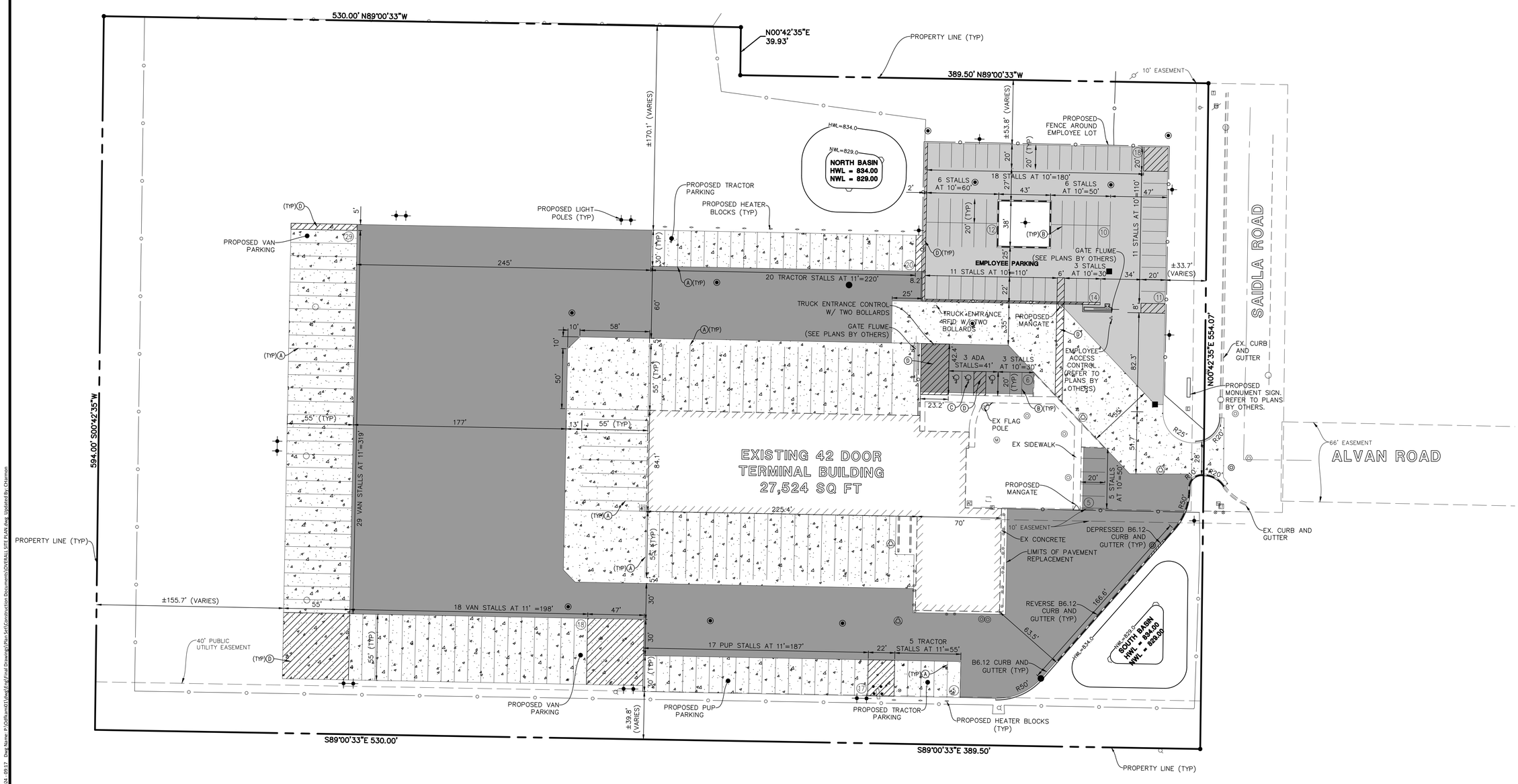
SITE DIMENSIONAL AND PAVING NOTES:

1. ALL DIMENSIONS ARE FACE OF CURB TO FACE OF CURB OR BUILDING FOUNDATION UNLESS NOTED OTHERWISE.
2. ALL PROPOSED CURB AND GUTTER SHALL BE B6.12 UNLESS OTHERWISE NOTED.
3. ALL CURB RADII SHALL BE 3' MEASURED TO FACE OF CURB UNLESS NOTED OTHERWISE.
4. TIE ALL PROPOSED CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH 2-#6 BARS x 18" LONG DOWELED INTO EXISTING CURB.
5. BUILDING DIMENSIONS AND ADJACENT PARKING HAVE BEEN PREPARED BASED UPON ARCHITECTURAL INFORMATION CURRENT AT THE DATE OF THIS DRAWING. SUBSEQUENT ARCHITECTURAL CHANGES MAY EXIST. THEREFORE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. BUILDING DIMENSIONS SHOWN SHOULD NOT BE USED FOR CONSTRUCTION LAYOUT OF BUILDING.
6. IMPROVEMENTS ADJACENT TO BUILDING, IF SHOWN, SUCH AS TRUCK DOCK, RETAINING WALLS, SIDEWALKS, CURBING, FENCES, CANOPIES, RAMPS, HANDICAP ACCESS, PLANTERS, DUMPSTERS, AND TRANSFORMERS ETC. HAVE BEEN SHOWN FOR APPROXIMATE LOCATION ONLY. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS, SPECIFICATIONS AND DETAILS.
7. LOCATION OF PRIVATE SIDEWALKS SHALL BE COORDINATED WITH PROPOSED DOORWAY. CONTRACTOR TO VERIFY ACTUAL BUILDING PLAN LOCATIONS WITH ARCHITECT/DEVELOPER PRIOR TO CONSTRUCTING THE SIDEWALKS.
8. ALL ROADWAY AND PARKING LOT SIGNAGE, STRIPING, SYMBOLS, ETC. SHALL BE IN ACCORDANCE WITH LATEST JURISDICTIONAL GOVERNMENTAL ENTITY DETAILS.
9. SOME EXISTING ITEMS TO BE REMOVED HAVE BEEN DELETED FROM THIS PLAN FOR CLARITY. SEE DEMOLITION PLAN FOR ITEMS DELETED.
10. PROVIDE DEPRESSED CURB AND RAMP AT ALL HANDICAP ACCESSIBLE SIDEWALK AND PATH LOCATIONS PER FEDERAL AND STATE STANDARDS.
11. THE CONTRACTOR SHALL CONTACT MISS-DIG (1-800-482-7171) 3 WORKING DAYS PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.

PAVEMENT LEGEND	
	STANDARD DUTY PAVEMENT HMA 2" HMA WEARING COURSE, MDOT 5EL 2" HMA LEVELING COURSE, MDOT 4EL 8" AGGREGATE BASE, MDOT 21AA NATURAL AGGREGATE
	HEAVY DUTY PAVEMENT HMA 2" HMA WEARING COURSE, MDOT 5EL 3" HMA LEVELING COURSE, MDOT 4EL 8" AGGREGATE BASE, MDOT 21AA NATURAL AGGREGATE
	HEAVY DUTY CONCRETE PAVEMENT 8" CONCRETE SURFACE, MDOT 3500 8" AGGREGATE BASE, MDOT 21AA NATURAL AGGREGATE

N

0 20 40 80
SCALE: 1"=40'



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DRAWN BY | REVISIONS | DATE

OLD DOMINION FREIGHT LINE - KALAMAZOO
CITY OF KALAMAZOO, MICHICAN
SITE DIMENSIONAL AND PAVING PLAN

PROJ. MGR.: JAR
PROJ. ASSOC.: AJH
DRAWN BY: JDP
DATE: 03/21/2024
SCALE: 1"=40'

SHEET 5 OF 10
ODF.KAMI.01

PENDING APPROVAL - NOT FOR CONSTRUCTION

March 20, 2024 - 09:17 Dwg Name: P:\Odf\Kami01\Dwg\Eng\Final Drawing\Plan Set\Construction Document\OVERALL SITE PLAN.dwg Updated By: Chamon

NORTH DETENTION BASIN	
HWL	834.00
NWL	829.00
DET. VOLUME PROVIDED	0.36 AC-FT

SOUTH DETENTION BASIN	
HWL	834.00
NWL	829.00
DET. VOLUME PROVIDED	0.45 AC-FT

06-01-16

GRADING PLAN LEGEND

764	PROPOSED 1 FOOT CONTOURS
792.8 G	PROPOSED SPOT ELEVATION
F.F.	PROPOSED FINISHED FLOOR ELEVATION
G/F	PROPOSED GRADE AT FOUNDATION
P	PROPOSED PAVEMENT ELEVATION
T/C	PROPOSED TOP OF CURB
T/W	PROPOSED TOP OF WALK
T/WALL	PROPOSED TOP OF WALL
M/E	MEET EXISTING
G	PROPOSED GROUND GRADE OR GROUND AT BASE OF RETAINING WALL
	PROPOSED DITCH OR SWALE
	PROPOSED DIRECTION OF FLOW
	OVERFLOW RELIEF SWALE
RIDGE	PROPOSED RIDGE LINE
0.57	PROPOSED DEPTH OF PONDING
	RETAINING WALL
L	PROPOSED SWALE LOW POINT
S	PROPOSED SWALE SUMMIT

06-01-16

GRADING NOTES:

1. RETAINING WALL DESIGN TO BE PROVIDED BY OTHERS.
2. PAVEMENT SLOPES THROUGH HANDICAP ACCESSIBLE PARKING AREAS SHALL BE 2.00% MAXIMUM IN ANY DIRECTION.
3. ALL HANDICAP RAMPS SHALL BE CONSTRUCTED WITH A MAXIMUM CROSS SLOPE OF 2.00% OR LESS.
4. MEET EXISTING GRADE AT PROPERTY LIMITS UNLESS NOTED OTHERWISE.
5. CONTRACTOR SHALL REFER TO THE SOIL EROSION AND SEDIMENT CONTROL PLAN AND DETAILS FOR CONSTRUCTION SCHEDULING AND EROSION CONTROL MEASURES TO BE INSTALLED PRIOR TO BEGINNING GRADING OPERATIONS.
6. THE CONTRACTOR SHALL CONTACT MISS-DIG (1-800-482-7171) 3 WORKING DAYS PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.
7. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
8. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITION OR BETTER.
9. ALL UNPAVED AREAS DISTURBED BY GRADING OPERATIONS SHALL RECEIVE 6 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH GOVERNING SPECIFICATIONS UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED.
10. EXISTING TOPOGRAPHY SHOWN REPRESENTS SITE CONDITIONS AS PREPARED BY NEDERVELD ON OCTOBER 2023. CONTRACTOR SHALL FIELD CHECK EXISTING ELEVATIONS AND CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION. IF THE CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY, AT THEIR EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR TO THE OWNER FOR REVIEW.
11. TRANSITIONS FROM DEPRESSED CURB TO FULL HEIGHT CURB SHALL BE TAPERED AT 2H:1V UNLESS OTHERWISE NOTED.

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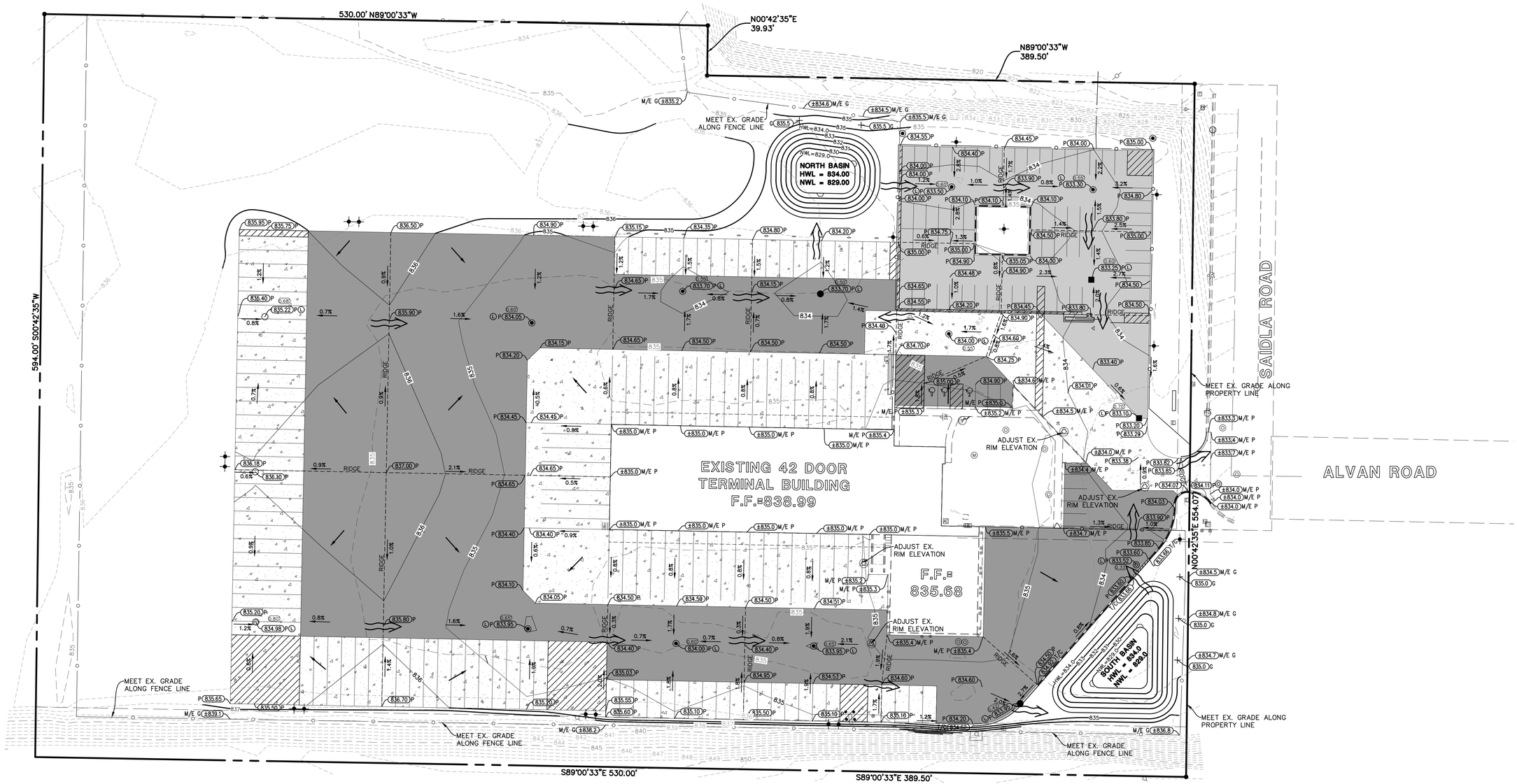
0 20 40 80

SCALE: 1"=40'



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DATE	REVISIONS	DRAWN BY

OLD DOMINION FREIGHT LINE - KALAMAZOO

CITY OF KALAMAZOO, MICHICAN

GRADING PLAN

PROJ. MGR.:	JAR
PROJ. ASSOC.:	AJH
DRAWN BY:	CLH
DATE:	03/21/2024
SCALE:	1"=40'

SHEET 6 OF 10

ODF.KAMI.01

PENDING APPROVAL - NOT FOR CONSTRUCTION

March 20, 2024 - 09:22 Dwg Name: P:\Odf\kami01\dwg\Eng\Final Drawings\Plan Set\Construction Documents\GRADING PLAN.dwg Updated By: Clarmon

3 WORKING DAYS
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CALL MISS-DIG®
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ALTERNATE NUMBER (248) MISS-DIG

COLOR CODES FOR UTILITY LOCATING:

Yellow	OIL & GAS	Blue	WATER
Orange	PHONE & CATV	Green	STORM DRAIN
Red	ELECTRIC	Brown	SEWER
White	PROPOSED EXCAVATION	Pink	SURVEYING

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES ... CALL MISS DIG

UTILITY CROSSINGS

① ST OVER EX. WM
B/P ST = 829.1±
T/P WM = V.I.F.

② EX. ELEC OVER ST
ELEC = V.I.F.
T/P ST = 831.6±

③ EX. ELEC OVER ST
ELEC = V.I.F.
T/P ST = 831.6±

④ EX. ELEC OVER ST
ELEC = V.I.F.
T/P ST = 830.7±

⑤ EX. ELEC OVER ST
ELEC = V.I.F.
T/P ST = 831.1±

⑥ EX. ELEC AND GAS OVER ST
ELEC AND GAS = V.I.F.
T/P ST = 821.3±

⑦ EX. ELEC OVER ST
ELEC = V.I.F.
T/P ST = 826.8±

NOTE: WATER AND SEWER CROSSINGS SHALL MEET STATE EPA SEPARATION AND PIPE MATERIAL REQUIREMENTS. (SEE DETAIL SHEET).

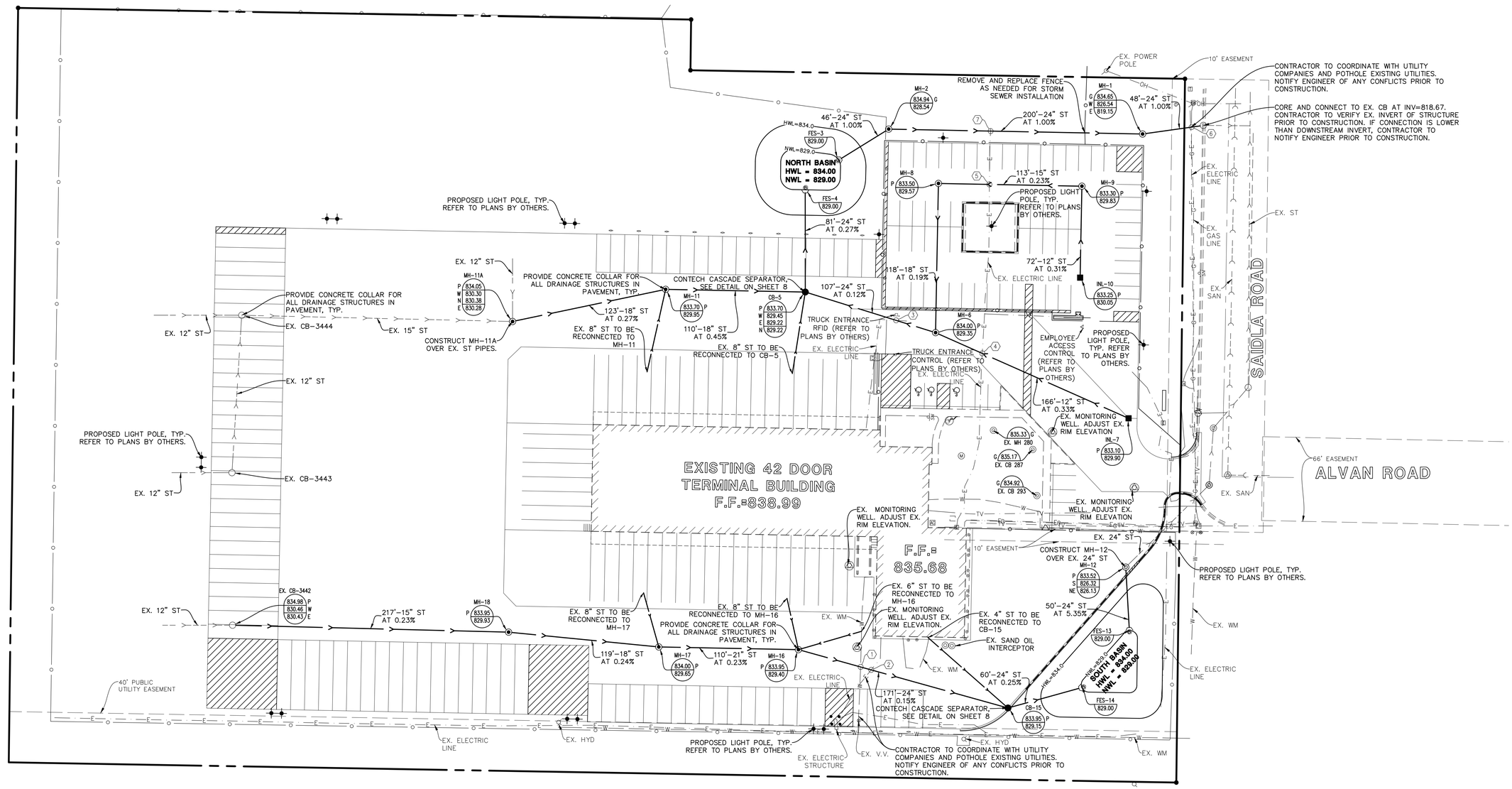
04-01-22

UTILITY NOTES:

1. ALL UTILITY DIMENSIONS ARE TO CENTER OF PIPE OR CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.
2. BUILDING DIMENSIONS AND ADJACENT UTILITY LAYOUT HAVE BEEN PREPARED BASED UPON ARCHITECTURAL INFORMATION CURRENT AT THE DATE OF THIS DRAWING. SUBSEQUENT ARCHITECTURAL CHANGES MAY EXIST. THEREFORE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND EXACT UTILITY ENTRANCE LOCATIONS AND NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL CONTACT J.U.L.I.E. (1-800-892-0123) PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.
4. ROUTING OF GAS, ELECTRIC AND TELEPHONE SERVICES IF SHOWN ARE APPROXIMATE ONLY AND SUBJECT TO CHANGE BASED UPON FINAL REVIEW AND APPROVAL BY RESPECTIVE UTILITY COMPANIES AND OWNER. CONTRACTOR SHALL CONTACT EACH UTILITY COMPANY AND COORDINATE FINAL LOCATIONS FOR ALL UTILITY SERVICES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL EXCAVATE AND VERIFY ALL EXISTING SEWER, WATER MAIN AND DRY UTILITY LOCATIONS, SIZES, CONDITIONS & ELEVATIONS AT PROPOSED POINTS OF CONNECTION AND CROSSINGS PRIOR TO ANY UNDERGROUND CONSTRUCTION AND NOTIFY THE OWNER OF ANY DISCREPANCIES OR CONFLICTS.
6. LIGHTING AND UNDERGROUND CABLE IF SHOWN ON PLANS ARE FOR APPROXIMATE LOCATION ONLY. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS AND DETAILS.
7. THE CONTRACTOR SHALL ADJUST RIM ELEVATIONS OF ALL EXISTING STRUCTURES TO PROPOSED FINISH GRADES.
8. CONTRACTOR TO VERIFY LOCATION, SIZES, AND ELEVATION OF ALL BUILDING SERVICE LOCATIONS WITH ARCHITECTURAL PLANS.
9. AT LOCATIONS WHERE WATER MAIN CROSSES BENEATH OR LESS THAN 18" ABOVE A SEWER, PROVIDE WATER MAIN PROTECTION PER STANDARD SPECIFICATIONS FOR SEWER AND WATER MAIN CONSTRUCTION IN ILLINOIS, LATEST EDITION.
10. ELEVATIONS GIVEN FOR STORM SEWER STRUCTURES LOCATED IN CURB LINE ARE PAVEMENT ELEVATIONS.
11. ALL WATER MAIN SHALL BE 5'-6" BELOW FINISHED GRADE TO TOP OF MAINS UNLESS NOTED OTHERWISE.
12. ALL EXISTING UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT ELEVATION OR LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES.
13. THE UNDERGROUND UTILITY INFORMATION AS SHOWN HERE ON IS BASED, IN PART, UPON INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED NOR CERTIFIED.
14. ALL SANITARY AND STORM SEWER LENGTHS SHOWN ARE CENTER OF MANHOLE TO CENTER OF MANHOLE OR STORM MANHOLE TO FES.
15. PROVIDE CONCRETE COLLAR FOR ALL DRAINAGE STRUCTURES IN PAVEMENT, NOT ADJACENT TO CURB. SEE CONCRETE COLLAR DETAIL ON DETAIL SHEET.
16. CONTRACTOR SHALL CORE AND BOOT ALL PIPE ENTRANCES TO EXISTING SANITARY MANHOLES.
17. EXTERNAL CHIMNEY SEALS ARE REQUIRED ON PROPOSED AND ADJUSTED EXISTING SANITARY MANHOLES.
18. SOME EXISTING ITEMS TO BE REMOVED HAVE BEEN DELETED FROM THIS PLAN FOR CLARITY. SEE DEMOLITION PLAN FOR ITEMS DELETED.
19. ALL D.I. WATERMAIN PIPE AND D.I. WATERMAIN FITTINGS SHALL BE WRAPPED.

N

0 20 40 80
SCALE: 1"=40'



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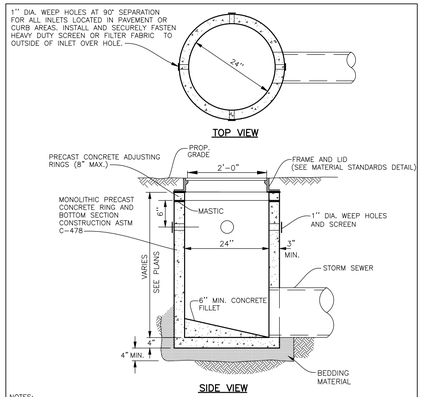
OLD DOMINION FREIGHT LINE - KALAMAZOO
CITY OF KALAMAZOO, MICHICAN
UTILITY PLAN

PROJ. MGR.: JAR
PROJ. ASSOC.: AJH
DRAWN BY: JDP
DATE: 03/21/2024
SCALE: 1"=40'

SHEET 7 OF 10
ODF.KAMI.01

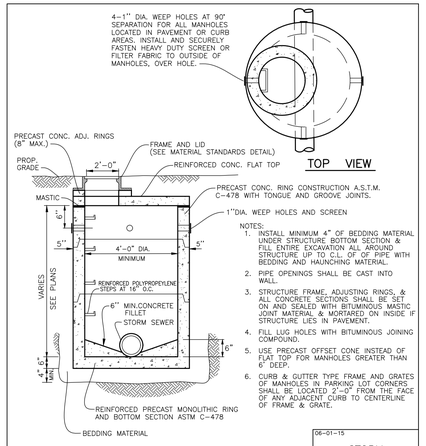
PENDING APPROVAL - NOT FOR CONSTRUCTION

March 29, 2024 - 09:21 Dwg Name: P:\Odfkami01\dwg\Eng\Final Drawings\Plan Set\Construction Documents\UTILITY.dwg Updated By: Chammon



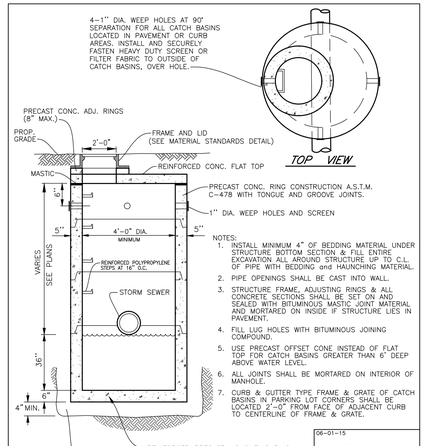
NOTES:
1. INSTALL MINIMUM 4" OF BEDDING MATERIAL UNDER STRUCTURE BOTTOM SECTION & FILL ENTIRE EXCAVATION ALL AROUND STRUCTURE UP TO C.L. OF PIPE WITH BEDDING AND HAUNCHING MATERIAL.
2. PIPE OPENINGS SHALL BE CAST IN TO WALL.
3. STRUCTURE FRAME, ADJUSTING RINGS, AND ALL CONCRETE SECTIONS SHALL BE SET ON AND SEALED WITH BITUMINOUS MASTIC JOINT MATERIAL AND MORTARED ON INSIDE IF STRUCTURE LIES IN PAVEMENT.
4. FILL LUG HOLES WITH BITUMINOUS JOINING COMPOUND.
5. CURB & GUTTER TYPE FRAME AND GRATES OF INLETS IN PARKING LOT CORNERS SHALL BE LOCATED 2'-0" FROM THE FACE OF ADJACENT CURB TO CENTERLINE OF FRAME & GRATE.

06-01-15
INLET DETAIL
S-ST-INLET



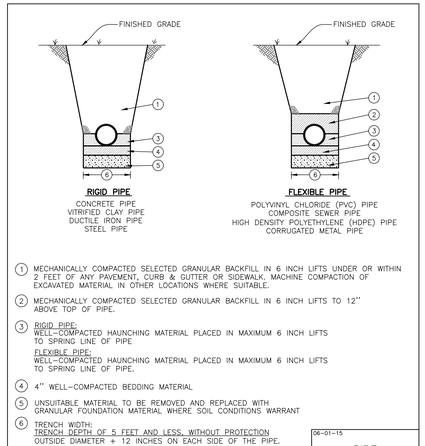
NOTES:
1. INSTALL MINIMUM 4" OF BEDDING MATERIAL UNDER STRUCTURE BOTTOM SECTION & FILL ENTIRE EXCAVATION ALL AROUND STRUCTURE UP TO C.L. OF PIPE WITH BEDDING AND HAUNCHING MATERIAL.
2. PIPE OPENINGS SHALL BE CAST INTO WALL.
3. STRUCTURE FRAME, ADJUSTING RINGS, & ALL CONCRETE SECTIONS SHALL BE SET ON AND SEALED WITH BITUMINOUS MASTIC JOINT MATERIAL AND MORTARED ON INSIDE IF STRUCTURE LIES IN PAVEMENT.
4. FILL LUG HOLES WITH BITUMINOUS JOINING COMPOUND.
5. USE PRECAST OFFSET CONE INSTEAD OF FLAT TOP FOR MANHOLES GREATER THAN 6' DEEP.
6. CURB & GUTTER TYPE FRAME AND GRATES OF MANHOLES IN PARKING LOT CORNERS SHALL BE LOCATED 2'-0" FROM THE FACE OF ANY ADJACENT CURB TO CENTERLINE OF FRAME & GRATE.

06-01-15
STORM MANHOLE DETAIL
S-ST-MANHOLE



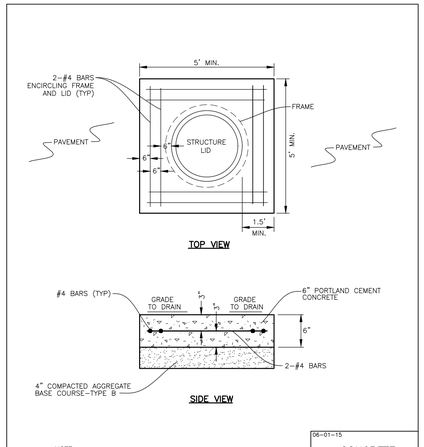
NOTES:
1. INSTALL MINIMUM 4" OF BEDDING MATERIAL UNDER STRUCTURE BOTTOM SECTION & FILL ENTIRE EXCAVATION ALL AROUND STRUCTURE UP TO C.L. OF PIPE WITH BEDDING and HAUNCHING MATERIAL.
2. PIPE OPENINGS SHALL BE CAST INTO WALL.
3. STRUCTURE FRAME, ADJUSTING RINGS & ALL CONCRETE SECTIONS SHALL BE SET ON AND SEALED WITH BITUMINOUS MASTIC JOINT MATERIAL AND MORTARED ON INSIDE IF STRUCTURE LIES IN PAVEMENT.
4. FILL LUG HOLES WITH BITUMINOUS JOINING COMPOUND.
5. USE PRECAST OFFSET CONE INSTEAD OF FLAT TOP FOR CATCH BASINS GREATER THAN 6' DEEP ABOVE WATER LEVEL.
6. ALL JOINTS SHALL BE MORTARED ON INTERIOR OF MANHOLE.
7. CURB & GUTTER TYPE FRAME & GRATE OF CATCH BASINS IN PARKING LOT CORNERS SHALL BE LOCATED 2'-0" FROM FACE OF ADJACENT CURB TO CENTERLINE OF FRAME & GRATE.

06-01-15
CATCH BASIN DETAIL (4'-0" DIA.)
S-ST-CATCHBASIN-4 FOOT



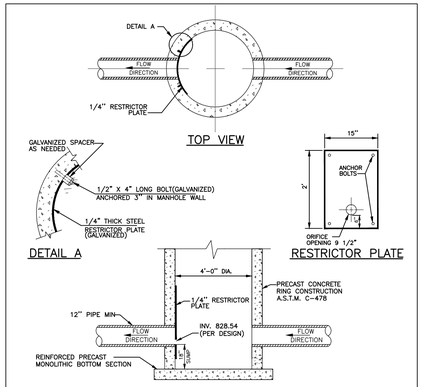
1. MECHANICALLY COMPACTED SELECTED GRANULAR BACKFILL IN 6 INCH LIFTS UNDER OR WITHIN 2 FEET OF ANY PAVEMENT, CURB & GUTTER OR SIDEWALK. MACHINE COMPACTION OF EXCAVATED MATERIAL IN OTHER LOCATIONS WHERE SUITABLE.
2. MECHANICALLY COMPACTED SELECTED GRANULAR BACKFILL IN 6 INCH LIFTS TO 12" ABOVE TOP OF PIPE.
3. RIGID PIPE:
   WELL-COMPACTED HAUNCHING MATERIAL PLACED IN MAXIMUM 6 INCH LIFTS TO SPRING LINE OF PIPE
   FLEXIBLE PIPE:
   WELL-COMPACTED HAUNCHING MATERIAL PLACED IN MAXIMUM 6 INCH LIFTS TO SPRING LINE OF PIPE.
4. 4" WELL-COMPACTED BEDDING MATERIAL
5. UNSUITABLE MATERIAL TO BE REMOVED AND REPLACED WITH GRANULAR FOUNDATION MATERIAL WHERE SOIL CONDITIONS WARRANT
6. TRENCH WIDTH:
   TRENCH DEPTH OF 5 FEET AND LESS, WITHOUT PROTECTION
   OUTSIDE DIAMETER + 12 INCHES ON EACH SIDE OF THE PIPE.
   TRENCH DEPTH OF 5 FEET AND LESS, WITH PROTECTION
   OUTSIDE DIAMETER + 18 INCHES ON EACH SIDE OF THE PIPE.
   TRENCH DEPTH OF GREATER THAN 5 FEET
   OUTSIDE DIAMETER + 18 INCHES ON EACH SIDE OF THE PIPE.

06-01-15
PIPE INSTALLATION DETAIL
S-MS-PIPEINSTALL



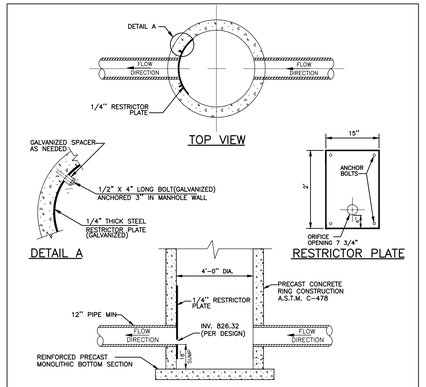
NOTE:
PROVIDE CONCRETE COLLAR AT ALL NEW DRAINAGE STRUCTURES IN PAVEMENT, NOT ADJACENT TO CURB.

06-01-15
CONCRETE COLLAR IN ASPHALT PAVEMENT DETAIL
S-ST-CONC-COLLAR



NOTES:
1. RESTRICTOR PLATE SHALL BE PERMANENTLY MOUNTED TO THE MANHOLE WALL BY MEANS OF 1/2" X 4" ANCHOR BOLTS. THE ANCHOR BOLTS SHALL BE WELDED TO THE RESTRICTOR PLATE AFTER INSTALLATION.
2. THE RESTRICTOR PLATE, SPACER AND ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED AFTER THE ORIFICE HAS BEEN CUT AND THE ANCHOR BOLTS HAVE BEEN WELDED.
3. THE ORIFICE OPENING SHALL BE 9 1/2".
4. CONSTRUCT MANHOLE AS PER STORM MANHOLE DETAIL.
5. PROVIDE MINIMUM 4" OF CA6 BEDDING MATERIAL UNDER MANHOLE BOTTOM SECTION & FILL ENTIRE EXCAVATION ALL AROUND MANHOLE UP TO C.L. OF SEWER WITH BEDDING MATERIAL.

03-12-24
RESTRICTOR MANHOLE 2 DETAIL (NORTH)
ODFKAM001



NOTES:
1. RESTRICTOR PLATE SHALL BE PERMANENTLY MOUNTED TO THE MANHOLE WALL BY MEANS OF 1/2" X 4" ANCHOR BOLTS. THE ANCHOR BOLTS SHALL BE WELDED TO THE RESTRICTOR PLATE AFTER INSTALLATION.
2. THE RESTRICTOR PLATE, SPACER AND ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED AFTER THE ORIFICE HAS BEEN CUT AND THE ANCHOR BOLTS HAVE BEEN WELDED.
3. THE ORIFICE OPENING SHALL BE 7 3/4".
4. CONSTRUCT MANHOLE AS PER STORM MANHOLE DETAIL.
5. PROVIDE MINIMUM 4" OF CA6 BEDDING MATERIAL UNDER MANHOLE BOTTOM SECTION & FILL ENTIRE EXCAVATION ALL AROUND MANHOLE UP TO C.L. OF SEWER WITH BEDDING MATERIAL.

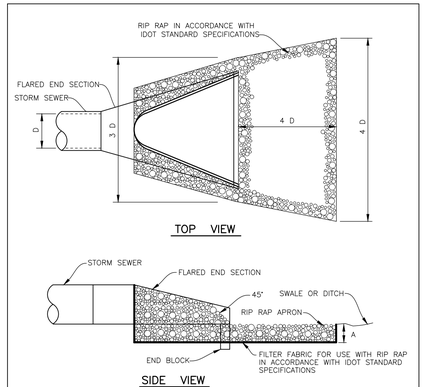
3-12-24
RESTRICTOR MANHOLE 12 DETAIL (SOUTH)
ODFKAM001

RIP-RAP

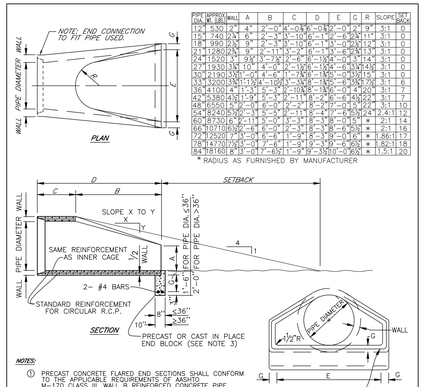
PIPE DIAMETER (IN.) D	STONE RIP-RAP							BEDDING
	QUALITY DESIGNATION	GRADATION NUMBER RR	MINIMUM THICKNESS (IN.) A	MINIMUM LENGTH (FT.) 4D	WEIGHT RANGE (#)	WEIGHT AVERAGE (#)	SIZE AVERAGE (IN.)	MINIMUM THICKNESS (IN.)
12"	B	3	8"	4'	1-50	10	4.5"	N/A
15"	B	3	8"	5	1-50	10	4.5"	N/A
18"	B	4	16"	6'	1-150	40	7"	6"
21"	B	4	16"	7'	1-150	40	7"	6"
24"	B	4	16"	8'	1-150	40	7"	6"
27"	B	4	16"	9'	1-150	40	7"	6"
30"	B	4	16"	10'	1-150	40	7"	6"
36"	B	5	22"	12'	3-400	90	10"	8"
42"	B	5	22"	14'	3-400	90	10"	8"
48"	B	6	26"	16'	6-600	170	12"	10"
54"	B	6	26"	18'	6-600	170	12"	10"
60"	B	6	26"	20'	6-600	170	12"	10"
72"	B	6	26"	24'	6-600	170	12"	10"

NOTE:
1. FOR PIPE LARGER THAN 72" A SPECIAL DESIGN OF RIP-RAP OR APRON IS REQUIRED.
2. REFER TO I.D.O.T. SPECIFICATIONS AND STANDARDS FOR BEDDING GRADTION.

06-01-15
STONE RIP RAP DETAIL
S-ST-RIPRAP-STONE



06-01-15
RIP RAP DETAIL (DISCHARGE TO DITCH)
S-ST-RIPRAP-DITCH

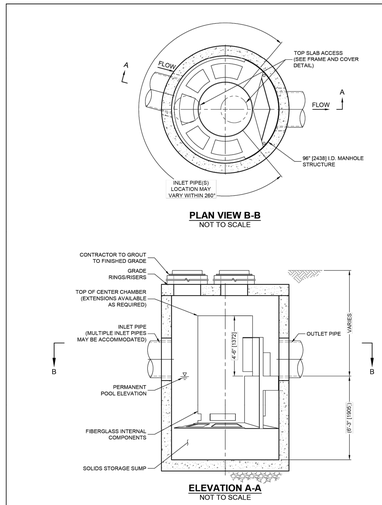


PIPE DIA. IN.	WALL IN.	A	B	C	D	E	G	R	SLOPE X TO Y	SET BACK
12"	5.30	12"	4"	2'-0"	4'-0"	8'-0"	0'-10"	0'-9"	3:1	0
15"	7.42	15"	5"	2'-3"	5'-0"	10'-0"	1'-1"	0'-10"	3:1	0
18"	9.90	18"	6"	2'-6"	5'-10"	11'-8"	1'-3"	0'-11"	3:1	0
21"	12.50	21"	7"	2'-9"	6'-8"	13'-4"	1'-5"	1'-0"	3:1	0
24"	15.60	24"	8"	3'-0"	7'-6"	15'-0"	1'-7"	1'-1"	3:1	0
27"	19.30	27"	10"	3'-3"	8'-4"	16'-8"	1'-10"	1'-3"	3:1	0
30"	21.90	30"	11"	3'-6"	9'-2"	18'-4"	2'-0"	1'-4"	3:1	0
33"	32.00	33"	11"	3'-9"	10'-0"	20'-0"	2'-3"	1'-5"	3:1	6
36"	41.00	36"	11"	4'-0"	10'-8"	21'-4"	2'-6"	1'-6"	3:1	7
42"	53.80	42"	13"	4'-5"	11'-8"	23'-4"	2'-9"	1'-7"	3:1	7
48"	68.00	48"	13"	5'-0"	12'-8"	25'-4"	3'-2"	1'-9"	3:1	10
54"	82.40	54"	13"	5'-6"	13'-8"	27'-4"	3'-5"	2'-0"	3:1	12
60"	87.50	60"	13"	6'-0"	14'-8"	29'-4"	3'-8"	2'-3"	3:1	14
66"	107.00	66"	13"	6'-6"	15'-8"	31'-4"	4'-0"	2'-6"	3:1	16
72"	129.00	72"	13"	7'-0"	16'-8"	33'-4"	4'-3"	2'-9"	3:1	17
78"	147.00	78"	13"	7'-6"	17'-8"	35'-4"	4'-6"	3'-0"	3:1	18
84"	181.60	84"	13"	8'-0"	18'-8"	37'-4"	4'-9"	3'-3"	3:1	20

* RADIUS AS FURNISHED BY MANUFACTURER

NOTES:
1. PRECAST CONCRETE FLARED END SECTIONS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-170 CLASS III, WALL B REINFORCED CONCRETE PIPE.
2. PRECAST CONCRETE FLARED END SECTION FOR PIPE DIAMETER REQUIRED SHALL BE AS INDICATED ON DETAIL PLAN FOR EACH INDIVIDUAL INSTALLATION.
3. THE END BLOCK SHALL BE PLACED PRIOR TO THE INSTALLATION OF THE FLARED END SECTION. THE END BLOCK SHALL BE CONSTRUCTED IN ACCORDANCE WITH IDOT STANDARD SPECIFICATIONS
4. ALL FLARED END SECTIONS SHALL HAVE GRATINGS AS PER IDOT STANDARD.
5. PROVIDE CLAY DAM UNDER COLLAR AND AROUND UPSTREAM END OF FES AND FIRST PIPE THE FULL WIDTH OF TRENCH AND 10 FEET LONG AT LOCATIONS WHERE THEY DISCHARGE INTO A DETENTION BASIN.
6. PROVIDE SETBACK FROM NORMAL WATER LEVEL OR TOE OF SIDE SLOPE ON DRY BASINS, STREAMS OR CHANNELS FOR PIPE 33" AND LARGER.

06-01-16
CONCRETE FLARED END SECTION DETAIL
S-ST-FLARED-END



CASCADE separator™

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-8 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
NOTES / SPECIAL REQUIREMENTS:			

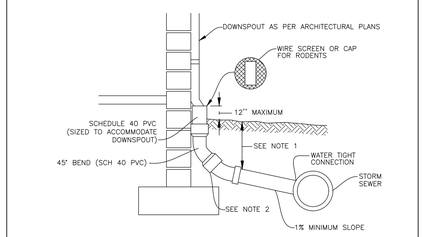
FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO H20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
5. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
7. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069

CS-8
CASCADE SEPARATOR
STANDARD DETAIL



NOTES:
1. FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.
2. A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.

06-01-17
DOWNSPOUT COLLECTOR DETAIL
S-ST-DOWNSPOUT

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
333 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.591.8500 fx 630.591.8585 manhard.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

OLD DOMINION FREIGHT LINE - KALAMAZOO
CITY OF KALAMAZOO, MICHICAN
CONSTRUCTION DETAILS

PROJ. MGR.: JAR
PROJ. ASSOC.: AJH
DRAWN BY: ALM
DATE: 03/21/2024
SCALE: N.T.S.

SHEET 8 OF 10
ODF.KAM1.01

PENDING APPROVAL - NOT FOR CONSTRUCTION

March 12, 2024 - 12:14 Dwg Name: P:\Odfkam001\dwg\Eng\Final Drawings\Plan Set\Construction Documents\SPECS - DETAILS.dwg Updated By: Chlarmon

RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES
GREAT LAKES – UPPER MISSISSIPPI RIVER BOARD OF STATE AND PROVINCIAL PUBLIC HEALTH AND ENVIRONMENTAL MANAGERS

38.3 RELATION TO WATER MAINS
38.31 HORIZONTAL AND VERTICAL SEPARATION

Sewers shall be laid at least 10 feet (3 m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. For gravity sewers where it is not practical to maintain a 10 foot (3 m) separation, the appropriate reviewing agency may allow deviation on a case–by–case basis, if supported by data from the design engineer. Such deviation may allow installation of the gravity sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the gravity sewer and at an elevation so the bottom of the water main is at least 18 inches (460 mm) above the top of the sewer.

If it is impossible to obtain proper horizontal and vertical separation as described above for gravity sewers, both the water main and gravity sewer shall be constructed of slip–on or mechanical joint pipe complying with Section 8.1 and Section 8.7 of the "Recommended Standards for Water Works – 2012 Edition" and shall be pressure rated to at least 150 psi (1034 kPa) and pressure tested to ensure watertightness.

WATER AND SEWER SEPARATION REQUIREMENTS

S–WM–SEP

RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES
GREAT LAKES – UPPER MISSISSIPPI RIVER BOARD OF STATE AND PROVINCIAL PUBLIC HEALTH AND ENVIRONMENTAL MANAGERS

38.3 RELATION TO WATER MAINS
38.32 CROSSINGS

Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods shall be specified:

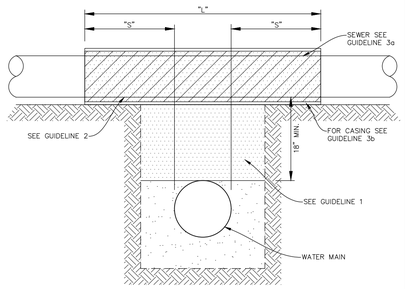
a. The sewer shall be designed and constructed equal to water pipe, as described in Paragraph 38.31.

b. Either the water main or the sewer line may be encased in a watertight carrier pipe that extends 10 feet (3 m) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be made of materials approved by the regulatory agency for use in water main construction.

WATER AND SEWER CROSSING REQUIREMENTS

S–WM–SEP–CROSSING

SEWER LINE WITH 18" VERTICAL SEPARATION ABOVE WATER MAIN



NOTE: "S" = THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING WATER MAIN.

GUIDELINES:

1. IF SELECT GRANULAR BACKFILL EXISTS: REMOVE WITHIN WIDTH OF SEWER TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
2. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF SEWER AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L" FEET.
3. (a) CONSTRUCT "L" FEET OF SEWER OF WATER MAIN MATERIAL AND PRESSURE TEST, OR:

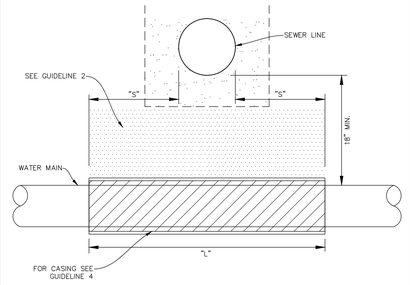
   (b) USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF SEWER AND SEAL ENDS OF CASING.

06–01–15

WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)

S–WM–SEP–VERTICAL–1

WATER MAIN BELOW SEWER LINE WITH 18" MINIMUM VERTICAL SEPERATION.



NOTE: "S" = THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING SEWER LINE.

GUIDELINES:

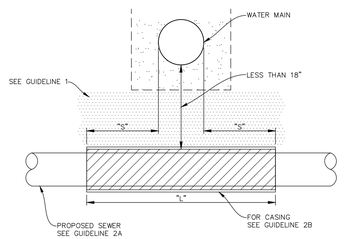
1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF WATER MAIN AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L" FEET.
2. IF SELECT GRANULAR BACKFILL EXISTS, REMOVE WITHIN WIDTH OF SEWER LINE TRENCH AND REPLACE WITH SELECT SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
3. PROVIDE ADEQUATE SUPPORT FOR SEWER LINE TO PREVENT DAMAGE DUE TO SETTLEMENT.
4. USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF WATER MAIN AND SEAL ENDS OF CASING.

06–01–15

WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)

S–WM–SEP–VERTICAL–2

SEWER LINE BELOW WATER MAIN WITH LESS THAN 18" VERTICAL SEPARATION.



NOTE: "S" = THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING WATER MAIN.

GUIDELINES:

1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF SEWER AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT FOR "S" FEET ON EACH SIDE OD WATER MAIN.
2. (a) CONSTRUCT "L" FEET OF PROPOSED SEWER OF WATER MAIN MATERIAL AND PRESSURE TEST, OR:

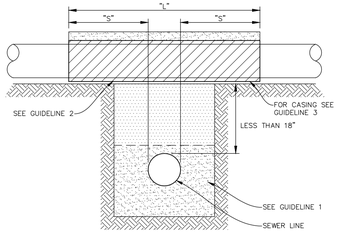
   (b) USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF PROPOSED SEWER AND SEAL ENDS OF CASING.
3. PROVIDE ADEQUATE SUPPORT FOR EXCAVATING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.

06–01–15

WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)

S–WM–SEP–VERTICAL–3

WATER MAIN ABOVE SEWER LINE WITH LESS THAN 18" VERTICAL SEPARATION.



NOTE: "S" = THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING SEWER LINE.

GUIDELINES:

1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF WATER MAIN AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L".
2. IF SELECT GRANULAR BACKFILL EXISTS, REMOVE WITHIN WIDTH OF EXISTING SEWER LINE TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
3. USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF PROPOSED WATER MAIN AND SEAL ENDS OF CASING.
4. POINT LOADS SHALL NOT BE ALLOWED BETWEEN WATER MAIN CASING AND SEWER.

06–01–15

WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)

S–WM–SEP–VERTICAL–4

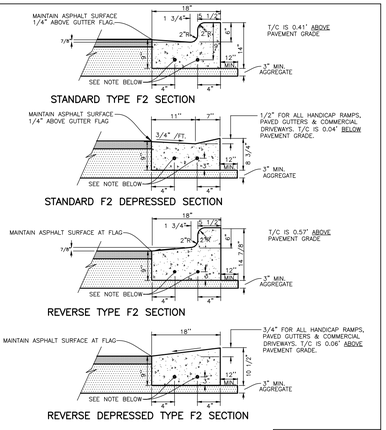
MATERIAL STANDARDS

ITEM	BRAND	PRODUCT
FIRE HYDRANTS (TRAFFIC MODEL)	MUELLER SUPER CENTURION WATEROUS PACER	A–423 WB–67
GATE VALVES SPECIFY SIZE NON–RISING STEM, 2" NUT, M.J., OPEN LEFT	MUELLER (SIZE) AMERICAN FLOW CONTROL	A–2360–20L SERIES 2500
VALVE BOXES 3 PIECE	EAST JORDAN TYLER/UNION	SCREW ADJUSTING EXTENSION TYPE
CURB STOPS (SPECIFY SIZE)	MUELLER FORD	300 BALL VALVE BALL VALVE
CORPORATION VALVE (SPECIFY SIZE)	MUELLER FORD	H–15000 FB600 (AWWA/CC THREAD)
MANHOLES/CATCHBASINS/INLETS IN OPEN AREAS AND PAVEMENT (WITH PROPER UTILITY MARKINGS)	NEENAH OPEN LID (ALL STRUCTURES UNLESS NOTED OTHERWISE) CLOSED LID (SELF SEALING) SWALES AND DITCHES	R–2502–C R–1772 R–4340 B
MANHOLES/CATCH BASINS/INLETS IN COMBINATION CURB & GUTTER (BICYCLE SAFE)	NEENAH ROLL/MOUNTABLE CURB B6.12 CURB DEPRESSED CURB AND GUTTER	R–3501–D2A R–3281–AL R–3281–AL WITH SLOTTED CURB PLATE
WATER SERVICE SADDLES (ALL SERVICE SADDLES SHALL BE DOUBLE STRAP; BRONZE, NYLON COATED OR STAINLESS STEEL)	MUELLER FORD SMITH–BLAIR 3/4" & 1"	DR2S FS 303 # 317
B–BOX (AT LEAST 1 1/4" TOP SECTION) ARCH PATTERN PLUG STYLE LID	FORD MUELLER	EA2 CURB BOX

12–01–23

MATERIAL STANDARDS

S–MS–MATERIALSTNDS

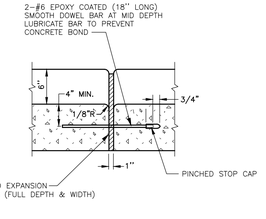


NOTE:
1. EXPANSION JOINTS TO BE LOCATED AT HIGH POINTS, UTILITY STRUCTURES, CURB RETURNS, COLD JOINTS OR 60' MAX. (SEE DETAIL)
2. CONTRACTION JOINTS ARE TO BE SAW CUT 2" DEEP AT 20' INTERVALS MAX.
3. INSTALL 2–#4 EXPOXY COATED BARS X 10'–0" LONG OVER ALL TRENCHES.
4. TRANSITION CURB AND GUTTER AS NECESSARY TO MEET DRAINAGE STRUCTURE FRAME AND GRATE

MODIFIED MDOT STANDARD CURB & GUTTER DETAIL

S–RD–B612–CURB

SHEET 1 OF 2



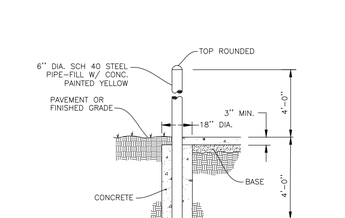
TYPICAL EXPANSION JOINT DETAIL CROSS SECTION

06–01–17

CURB EXPANSION JOINT

S–RD–EXPANSION–JOINT

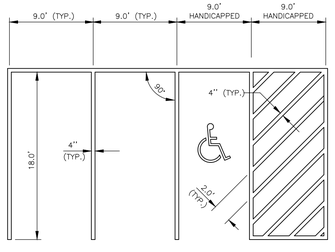
SHEET 2 OF 2



06–01–15

BOLLARD PIPE DETAIL #1

S–RD–BOLLARD–1



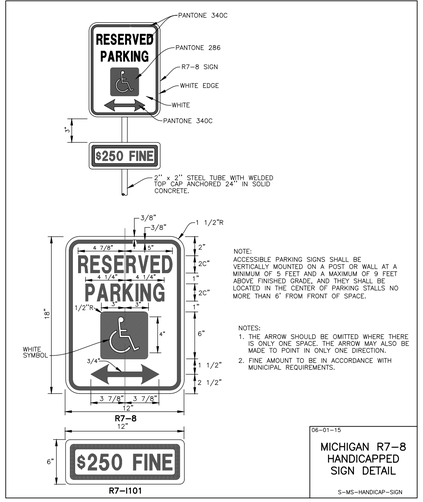
90° STALL

NOTE:
1. HANDICAPPED STALL AND SYMBOL STRIPING TO BE PER JURISDICTION GOVERNMENT AGENCY STANDARDS.
2. STANDARD PARKING STALL STRIPING TO BE TWO COATS YELLOW PAINT UNLESS OTHERWISE NOTED.

06–01–15

TYPICAL 90° PARKING STRIPING DETAIL

S–MS–90PARKING



NOTE:
ACCESSIBLE PARKING SIGNS SHALL BE VERTICALLY MOUNTED ON A POST OR WALL AT A MINIMUM OF 5 FEET AND A MAXIMUM OF 9 FEET ABOVE FINISHED GRADE, AND THEY SHALL BE LOCATED IN THE CENTER OF PARKING STALLS NO MORE THAN 6" FROM FRONT OF SPACE.

NOTES:
1. THE ARROW SHOULD BE OMITTED WHERE THERE IS ONLY ONE SPACE. THE ARROW MAY ALSO BE MADE TO POINT IN ONLY ONE DIRECTION.
2. FINE AMOUNT TO BE IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.

06–01–15

MICHIGAN R7–8 HANDICAPPED SIGN DETAIL

S–MS–HANDICAP–SIGN

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
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Civil Engineers • Water Resource Engineers • Water Resource Engineers • Structural Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

OLD DOMINION FREIGHT LINE - KALAMAZOO
CITY OF KALAMAZOO, MICHICAN
CONSTRUCTION DETAILS

PROJ. MGR.: JAR
PROJ. ASSOC.: AJH
DRAWN BY: NAH
DATE: 03/21/2024
SCALE: N.T.S

SHEET 9 OF 10

ODF.KAMI.01

PENDING APPROVAL - NOT FOR CONSTRUCTION

March 12, 2024 - 17:14 Dwg Name: J:\Civil\km01\dwg\Engr\Final Drawings\Plan Set\Construction Documents\SPECS - DETAILS.dwg Updated By: Chammon

06-01-16

MANHARD CONSULTING
STANDARD SPECIFICATIONS

GENERAL CONDITIONS

CONTRACTOR acknowledges and agrees that the use and reliance of these Plans and Specifications is sufficient consideration for CONTRACTOR'S covenants stated herein.

DEFINITION OF TERMS

a. "CLIENT" shall mean OLD DOMINION FREIGHT LINE, INC., which is the person or entity with whom Manhard Consulting has contracted with to prepare Civil Engineering PLANS and SPECIFICATIONS.

b. "ENGINEER" shall mean Manhard Consulting, a Civil Engineering consultant on the subject project.

c. "PLANS and SPECIFICATIONS" shall mean the Civil Engineering PLANS and SPECIFICATIONS prepared by the ENGINEER, which may be a part of the contract documents for the subject project.

d. "CONTRACTOR" shall mean any person or entity performing any work described in the PLANS and SPECIFICATIONS.

e. "JURISDICTIONAL GOVERNMENTAL ENTITY" shall mean any municipal, county, state or federal unit of government from whom an approval, permit and/or review is required for any aspect of the subject project.

INTENT OF THE PLANS AND SPECIFICATIONS

The intent of the PLANS and SPECIFICATIONS is to set forth certain requirements of performance, type of equipment and structures, and standards of materials and construction. They may also identify labor and materials, equipment and transportation necessary for the proper execution of the work but are not intended to be infinitely determined so as to include minor items obviously required as part of the work. The PLANS and SPECIFICATIONS require new material and equipment unless otherwise indicated, and to require complete performance of the work in spite of omissions of specific references to any minor component part. It is not intended, however, that materials or work not covered by or properly inferred from any heading, branch, class or trade of the SPECIFICATIONS shall be supplied unless distinctly so noted. Materials or work described in words, which so applied have a well-known technical or trade meaning, shall be held to refer to such recognized standards.

INTERPRETATION OF PLANS AND SPECIFICATIONS

a. The CLIENT and/or CONTRACTOR shall promptly report any errors or ambiguities in the PLANS and SPECIFICATIONS to the ENGINEER. Questions as to meaning of PLANS and SPECIFICATIONS shall be interpreted by the ENGINEER, whose decision shall be final and binding on all parties concerned.

b. The ENGINEER will provide the CLIENT with such information as may be required to show revised or additional details of construction.

c. Should any discrepancies or conflicts on the PLANS or SPECIFICATIONS be discovered either prior to or after award of the contract, the ENGINEER's attention shall be called to the same before the work is begun thereon and the proper corrections made. Neither the CLIENT nor the CONTRACTOR may take advantage of any error or omissions in the PLANS and SPECIFICATIONS. The ENGINEER will provide information when errors or omissions are discovered.

GOVERNING BODIES

All works herein proposed shall be completed in accordance with all requirements of any JURISDICTIONAL GOVERNMENTAL ENTITY, and all such pertinent laws, directives, ordinances and the like shall be considered to be a part of these SPECIFICATIONS. If a discrepancy is noted between the PLANS and SPECIFICATIONS and requirements of any JURISDICTIONAL GOVERNMENTAL ENTITY, the CLIENT and/or the CONTRACTOR shall immediately notify the ENGINEER in writing.

LOCATION OF UNDERGROUND FACILITIES AND UTILITIES

When the PLANS and SPECIFICATIONS include information pertaining to the location of existing underground facilities and utilities (including but not limited to water mains, sanitary sewers, storm sewers, electric, telephone, gas and cable TV lines), such information represents only the opinion of the ENGINEER as to the approximate location and elevation of such facilities and utilities. At the locations wherein detailed positions of these facilities and utilities become necessary to the new construction, including all points of connection, the CONTRACTOR shall furnish all labor and tools to verify or definitely establish the horizontal location, elevation, size and material (if appropriate) of the facilities and utilities. The CONTRACTOR shall notify the ENGINEER at least 48 hours prior to construction if any discrepancies in existing utility information or conflicts with existing utilities exist. The ENGINEER assumes no responsibility whatever with respect to the sufficiency or accuracy of the information shown on the PLANS and SPECIFICATIONS relative to the location of underground facilities and utilities, nor the manner in which they are removed or adjusted.

It shall be the CONTRACTOR's responsibility prior to construction, to notify all Utility Companies of the intent to begin construction and to verify the actual location of all such facilities and utilities. The CONTRACTOR shall also obtain from the respective Utility Companies the working schedules for removing or adjusting these facilities.

UNSUITABLE SOILS

The PLANS have been prepared by the ENGINEER based on the assumption that all soils on the project are suitable to support the proposed improvements shown. The CLIENT or CONTRACTOR shall immediately notify the ENGINEER if he discovers or encounters an obstruction that prevents the installation of the improvement according to the line and grades shown on the PLANS.

PROTECTION OF TREES

All trees that are not to be removed shall be protected from damage. Trees shall not be removed unless requested to do so in writing by the CLIENT.

NOTIFICATION OF OWNERS OF FACILITIES AND UTILITIES

The CONTRACTOR shall notify all applicable Jurisdictional Governmental Entities or utility companies, i.e., water, sewer, electric, telephone, gas and cable TV prior to beginning any construction so that said entity or company can establish the location and elevation of underground pipes, conduits or cables adjoining or crossing proposed construction.

TRAFFIC CONTROL

The CONTRACTOR shall provide when required by any JURISDICTIONAL GOVERNMENTAL ENTITY, all signs, equipment, and personnel necessary to provide for safe and efficient traffic flow in all areas where the work will interrupt, interfere or cause to change in any form, the conditions of traffic flow that existed prior to the commencement of any portions of the work. The CLIENT may, at his discretion, require the CONTRACTOR to furnish traffic control under these or other circumstances where in his opinion it is necessary for the protection of life and property. Emergency vehicle access shall be maintained at all times. Unless authorized by the CLIENT or CLIENT's construction representative, all existing access points shall be maintained at all times by the CONTRACTOR. The need for traffic control shall be anticipated by the CLIENT.

WORK AREA

The CONTRACTOR, his agents and employees and their employees and all equipment, machinery and vehicles shall confine their work within the boundaries of the project or work area specified by the Client. The CONTRACTOR shall be solely liable for damage caused by him or his agents and employees and their equipment, machinery and vehicles on adjacent property or areas outside designated work areas.

UTILITY POLES

It shall be the responsibility of the CONTRACTOR to arrange for the relocation or bracing of existing utility poles that may be within the working limits of this contract. It is expressly understood that all work and costs connected with the maintenance of these utility poles, their temporary relocations, etc., shall be the responsibility of the CLIENT or the CONTRACTOR.

RESTORATION

It is the intent of these SPECIFICATIONS that clean-up and final restoration shall be performed immediately upon completion of each phase of the work, both inside and outside the Project, or when so directed by the CLIENT so that these areas will be restored as nearly as possible to their original condition or better, and shall include but not be limited to, restoration of maintained lawns and rights-of-way, roadways, driveways, sidewalks, ditches, bushes, hedges, trees, shrubs, fences, mailboxes, sewers, drain tiles, water mains, etc.

CLEANING UP

The CONTRACTOR shall at all times keep the premises free from accumulations of waste material or rubbish caused by his employees or work, and at the completion of the work he shall remove all his rubbish, tools, scaffolding and surplus materials and shall leave his work "broom clean" or its equivalent, unless more exactly specified.

ROAD CLEANING

The CONTRACTOR shall maintain roadways adjoining the project site free from mud and debris at all times. If mud and/or debris is carried onto the roadways from vehicles entering onto the highway from either the CONTRACTOR's trucks, his employees' vehicles, or his material suppliers, the CONTRACTOR shall immediately remove said mud and/or debris.

SAFETY AND PROTECTION

The CONTRACTOR shall be solely and completely responsible for the conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. The CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR's duties and responsibilities for safety and for protection of the work shall continue until such time as all work is completed and the CLIENT has notified CONTRACTOR that the work is acceptable. The duties of the ENGINEER do not include review of the adequacy of either the CONTRACTOR's or the general public's safety in, on, or near the construction site.

HOLD HARMLESS

To the fullest extent permitted by law, any CONTRACTOR; material supplier or other entity by use of these plans and specifications hereby waives any right of contribution and agrees to indemnify, defend, save and hold harmless the CLIENT and ENGINEER and its agents, employees and consultants from and against all manner of claims, causes, causes of action, damages, losses and expenses, including but not limited to, attorneys' fees arising out of, resulting from or in connection with the performance of any work, pursuant to or with respect to these plans and specifications. However, this indemnity shall not be construed to indemnify ENGINEER, its consultants, agents or employees against its own negligence.

Claims, damages, losses and expenses as these words are used in the Agreement shall mean and include, but not be limited to (1) injury or damage occurring by reason of the failure of or use or misuse of any hoist, riggings, blocking, scaffolding or any and all other kinds of items of equipment, whether or not the same be owned, furnished or loaned by any part or entity, including any contractor; (2) all attorneys' fees and costs incurred in bringing an action to enforce the provisions of this indemnity; (3) costs for time expended by the indemnified party and its employees, at its usual rates plus costs or travel, long distance telephone and reproduction of documents and (4) consequential damages.

In any and all claims against the CLIENT or ENGINEER or any of their agents or employees and consultants by any party, including any employee of the CONTRACTOR or any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount of type of damages, compensation or benefits payable by or for the CONTRACTOR or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts or any insurance maintained by CONTRACTOR or any Subcontractor or any other party.

INSURANCE

Any party using or relying on these plans, including any contractor, material supplier, or other entity shall obtain, (prior to commencing any work) general public liability insurance insuring against all damages and claims for any bodily injuries, death or property damage arising out of any work, including the construction work provided for in these plans, and shall name the CLIENT and ENGINEER and its consultants, agents and representatives as additional insureds under such insurance policy; provided that any party using or relying on these plans having obligations to maintain specific insurance by reason of any agreement with CLIENT or any CONTRACTOR or ENGINEER shall provide evidence and certificates of insurance as required by such contract or agreement. Such insurance must contain a clause stating that the insurance is primary coverage for ENGINEER and ENGINEER's other applicable coverage is considered secondary. Such insurance shall not limit any liability of any party providing work or services or providing materials.

THIRD PARTY BENEFICIARY

Manhard Consulting, Ltd., the ENGINEER, is intended to be a third party beneficiary of this willing agreement and requirement.

DETAILED SPECIFICATIONS

I. DEMOLITION

The CONTRACTOR shall coordinate with respective utility companies prior to the removal and/or relocation of utilities. The CONTRACTOR shall coordinate with the utility company concerning portions of work which may be performed by the Utility Company's forces and any fees which are to be paid to the utility company for their services. The CONTRACTOR is responsible for paying for all fees and charges.

Should removal and/or relocation activities damage features indicated to remain, the CONTRACTOR shall provide new materials/structures in accordance with the contract documents. Except for materials designed to be relocated on this plan, all other construction materials shall be new.

Prior to demolition occurring, all erosion control devices are to be installed.

All existing utility lines and conduits located under proposed buildings shall be removed and properly backfilled. All utility lines and conduits located under drives, on-site roads, parking lots or sidewalks shall be filled with a flowable backfill and end plugged. All existing structures shall be removed. All existing utility lines located under landscape areas shall be left in place and plugged at all structures.

The CONTRACTOR is responsible for demolition, removal and disposal (in a location approved by all JURISDICTIONAL GOVERNING ENTITIES) of all structures, pads, walls, flumes, foundations, road, parking lots, drives, drainage structures, utilities, etc., such that the improvements shown on these plans can be constructed. All demolition work shall be in accordance with all applicable federal, state and local requirements. All facilities to be removed shall be undercut to suitable material and brought to grade with suitable compacted fill material per the specifications.

The CONTRACTOR is responsible for obtaining all permits required for demolition and disposal.

Electrical, telephone, cable, water, fiber optic cable and/or gas lines needing to be removed shall be coordinated by the CONTRACTOR with the affected utility company.

CONTRACTOR must protect the public at all times with fencing, barricades, enclosures, and other appropriate best management practices.

Continuous access shall be maintained for surrounding properties at all times during demolition.

All fire access lanes within the project area shall remain in service, clean of debris, and accessible for use by emergency vehicles.

The CONTRACTOR shall coordinate water main work with the Fire Department and the JURISDICTIONAL GOVERNING ENTITY to plan the proposed improvements and to ensure adequate fire protection is available to the facility and site throughout this specific work and through all phases of construction. CONTRACTOR shall be responsible for any required water main shut offs with the JURISDICTIONAL GOVERNING ENTITY during construction. Any costs associated with water main shut offs will be the responsibility of the CONTRACTOR and no extra compensation will be provided.

CONTRACTOR shall maintain all existing parking areas, sidewalks, drives, etc. clear and free from any construction activity and/or material to ensure easy and safe pedestrian and vehicular traffic to and from the site. CONTRACTOR shall coordinate/phase all construction activity within proximity of the building and utility interruptions with the facility manager to minimize disturbance and inconvenience to facility operations.

CONTRACTOR may limit saw-cut and pavement removal to only those areas where it is required as shown on these construction plans, however if any damage is incurred on any of the surrounding pavement, etc. the CONTRACTOR shall be responsible for ITS removal and repair.

Any existing wells encountered shall be exposed and sealed 3' below proposed finish grade by the CONTRACTOR in accordance with Section 920.120 (latest edition) of the Michigan Water Well Construction Code, Department of Public Health, and all applicable local rules and regulations. CONTRACTOR is responsible for obtaining all permits required by JURISDICTIONAL GOVERNMENTAL ENTITIES for abandoning existing wells.

Any existing septic tanks and grease traps encountered shall have all liquids and solids removed and disposed of by a licensed commercial hauler in accordance with JURISDICTIONAL GOVERNING ENTITY regulations, and the tank and grease traps shall then be filled with suitable materials or removed from the site and disposed of by the CONTRACTOR.

Voids left by any item removed under any proposed building, pavement, walk, etc. or within 24" thereof shall be filled and compacted with suitable materials by the CONTRACTOR.

The CONTRACTOR shall be responsible for the disconnection of utility services to the existing buildings prior to demolition of the buildings.

Any material containing asbestos found within existing structures shall be removed from the site and disposed of off-site by the CONTRACTOR in accordance with County, State and Federal regulations.

CONTRACTOR shall develop and implement a daily program of dust control and shall submit and obtain JURISDICTIONAL GOVERNING ENTITY approval of dust control procedures prior to demolition of any structures. Modification of dust control procedures shall be performed by the CONTRACTOR to the satisfaction of the JURISDICTIONAL GOVERNING ENTITY as requested.

The CONTRACTOR shall coordinate all demolition with the JURISDICTIONAL GOVERNING ENTITY and CLIENT to ensure protection and maintenance of sanitary sewer and water utilities as necessary and to provide stormwater conveyance until new facilities are constructed, tested and placed into operation.

The locations of all existing utilities shown on this plan have been determined from the best information available and are given for the convenience of the CONTRACTOR and are not to be interpreted as the exact location, or as the only obstacles that may occur on the site. The ENGINEER assumes no responsibility for their accuracy. Prior to the start of any demolition activity, the CONTRACTOR shall notify the utility companies for location of existing utilities and shall verify existing conditions and proceed with caution around any anticipated features.

The CONTRACTOR is responsible for removing the existing irrigation system in the areas of proposed improvements. The contractor shall cap the existing irrigation system to remain such that the remaining system shall continue to function properly.

The parking lot shall be completed in sections such that it does not interrupt the facility operations. The CONTRACTOR shall coordinate with the construction manager for work to be performed.

II.EARTHWORK

STANDARDS

This work shall be completed in conformance with the applicable sections of the Standard Specifications for Road and Bridge Construction, Department of Transportation, State of Michigan, latest edition except as modified below.

SOIL BORING DATA

Copies of results of soil boring and reports, if such borings were taken by the CLIENT in the vicinity of the proposed construction site, should be made available by the CLIENT to the CONTRACTOR. These borings are presented for whatever purpose the CONTRACTOR chooses to make of them. The ENGINEER makes no representation or warranty regarding the number, location, spacing or depth of borings taken, nor of the accuracy or reliability of the information given in the results thereof.

Further, the ENGINEER does not assume responsibility for the possibility that during construction, the soil and groundwater condition may be different than indicated. Neither does the ENGINEER assume responsibility for variations of soil and groundwater at location between borings. The CONTRACTOR is required to make its own borings, explorations and observations to determine soil and groundwater conditions.

EARTHWORK CALCULATIONS AND CROSS SECTIONS

The CONTRACTOR understands that any earthwork calculations, quantities or cross sections that have been furnished by the ENGINEER are for information only and are provided without any guarantee by the CLIENT or ENGINEER whatsoever as to their sufficiency or accuracy. CONTRACTOR warrants that he has performed his own site investigations as necessary and his own calculations and cross sections to determine site soil conditions and earthwork volumes. The ENGINEER makes no representation or guarantee regarding earthwork quantities or that the earthwork for this project will balance due to the varying field conditions, changing soil types, allowable construction to tolerances and construction methods that are beyond the control of the ENGINEER.

CLEARING, GRUBBING AND TREE REMOVAL

The site shall be cleared, grubbed, and trees and stumps removed where designated on the PLANS. Trees designated to remain shall be protected from damage.

TOPSOIL STRIPPING

Upon completion of demolition, clearing, grubbing and tree removal, all topsoil shall be stripped from under all buildings and pavements areas, and other areas necessary to complete the work. Topsoil stripped shall be placed in stockpiles in locations as designated by the CLIENT.

TOPSOIL RESPREAD

Upon completion of roadway and/or parking lot improvements and installation of underground utilities a minimum of six inches (6") of topsoil shall be respread over all unpaved areas which have been disturbed by earthwork construction, except building pads and other designated areas, which shall be kept free from topsoil.

SEEDING

Upon completion of topsoil respread, the CONTRACTOR shall apply seed and fertilizer to all respread areas in accordance with MDOT standards or as designated on landscape drawings and specifications provided by the CLIENT.

SODDING

Upon completion of topsoil respread, the CONTRACTOR shall install sod to all areas designated on the plans or as designated on the landscape drawings and specifications provided by the CLIENT.

EXCAVATION AND EMBANKMENT

Upon completion of topsoil stripping, all excavation and embankments shall be completed as shown on the PLANS. All suitable excavated materials shall be hauled, placed (moisture conditioned if necessary) and compacted in the embankment areas. The CONTRACTOR shall include all dewatering, temporary ditching and culverts necessary to complete the excavation and embankment.

Specifically included in the scope of Excavation and Embankments is grading and shaping of all cut or fill areas including swales and ditches; handling of sewer spoil, etc., and all work required to provide positive drainage at the end of each working day and upon completion of a section.

The CONTRACTOR shall be responsible for the excavation of all swales and ditches and for the excavation or filling of the roads, building pads and parking lots within the work limits to lines & grades shown on the plans. He shall be responsible for obtaining compaction in accordance with the minimum values listed in the table below for all embankments unless more stringent values are listed in the soils report or are approved by the CLIENT, and to use any method approved by the CLIENT necessary to obtain this compaction (i.e., soil fabric or any undercutting that may be required).

Type Material	Percent Compaction Standard	Pavement & Floor Slabs	Grass Areas
Sandy Soils	Modified Proctor	95%	90%
Clayey Soils	Standard Proctor	95%	90%

The CONTRACTOR shall notify the CLIENT if proper compaction cannot be obtained so that the CLIENT may determine what remedial measures may be needed.

A soils testing firm employed by the CLIENT shall determine which soils are unsuitable. Materials in their natural state being defined as unsuitable that would be suitable material if moisture conditioned, shall be conditioned by the CONTRACTOR and used as suitable embankment material or hauled from the site.

For purposes of definition, unsuitable material shall be as follows unless determined otherwise by the Soils Engineer:

1. Any soil whose optimum moisture content exceeds 25%.
2. Any cohesive soil with an unconfined compressive strength of 1.5 tons per square foot or less.
3. Any soil whose silt content exceeds 60% by weight.
4. Any soil whose maximum density is less than 100 pounds per cubic foot.
5. Any soil containing organic, deleterious, or hazardous material.

Upon completion of excavation and shaping of the water retention areas intended to maintain a permanent pool of water, all silt seams and granular or sandy soils shall be removed to a minimum depth of three feet below the subgrade and replaced with an impermeable clay liner, including adjacent to and under storm sewer inlets and outlets. It is the intent of these PLANS and SPECIFICATIONS that the CONTRACTOR shall prepare the lake bottoms, side slopes, and compaction thereof such that the lakes will maintain the proposed normal water level and that leakage does not exceed ½ inch per week.

Ditches and swales are to be excavated to the lines and grades indicated on the PLANS. All suitable materials excavated from the ditches shall be used in construction of the embankments.

The CONTRACTOR shall notify the CLIENT immediately upon encountering groundwater during excavation. If in the opinion of the CLIENT or the JURISDICTIONAL GOVERNING ENTITY this condition necessitates the installation of perforated drain tile bedded in washed gravel or open storm sewer joints wrapped with fabric, the CONTRACTOR shall install the same.

During excavation and embankment, grades may be adjusted to achieve an overall site earthwork balance. The CONTRACTOR shall cooperate fully with the CLIENT in adjustment of grades, construction methods and placement of material to meet the above goals and shall immediately advise CLIENT if he believes that the earthwork will not balance.

It is the intent of these PLANS that storm waters falling on the site be diverted into sedimentation / lake / detention basins during construction. The CONTRACTOR shall construct and maintain any temporary ditches or swales that are necessary to accomplish this prior to beginning mass excavation.

EROSION CONTROL

Suitable erosion control practices shall be maintained by the CONTRACTOR in accordance with Michigan Department of Transportation Soil Erosion and Sediment Control Manual and all applicable Soil Erosion and Sedimentation Control ordinances and the PLANS.

UNDERCUTTING DURING EARTHWORK

If the subgrade cannot be dried adequately by discing as outlined above for placement of material to planned grades and if the CLIENT determines that the subgrade does not meet the standards set forth above, the CLIENT may require undercutting.

MISCELLANEOUS CONTRACT ITEMS

The following items may be required at the CLIENT's option, as indicated on the PLANS or as required by the JURISDICTIONAL GOVERNING ENTITY:

(1) **GEOTEXTILE FABRIC**

Geotextile fabric or approved equal shall be provided in areas as designated by the CLIENT, as indicated on the PLANS or as required by the JURISDICTIONAL GOVERNING ENTITY where proper compaction of embankments over existing soft soils is not possible. Geotextile fabric shall meet the material specifications of and shall be installed in accordance with the above standards.

(2) **EROSION CONTROL BLANKET**

Erosion control blanket or approved equal shall be provided in areas as designated by the CLIENT, as indicated on the PLANS or as required by the JURISDICTIONAL GOVERNING ENTITY for the stabilization of disturbed areas. Erosion control blanket shall meet the material specifications of and shall be installed in accordance with the above standards, the Michigan Urban Manual and/or the details shown on the PLANS.

III.UNDERGROUND IMPROVEMENTS

A. GENERAL

STANDARDS

All underground improvements shall be constructed and tested in accordance with the Standard Specifications for Water and Sewer Construction in Michigan and Standard Specifications for Road and Bridge Construction, Department of Transportation, State of Michigan, latest edition. In the event of conflicting guidelines, the more restrictive shall govern.

SELECTED GRANULAR BACKFILL

Selected Granular Backfill shall be required for all sewer and water main trenches lying under existing or proposed streets, driveways, parking lots and within 24" thereof, and where noted on PLANS. All material placed in such trenches shall be in accordance with the above standards.

MANHOLES, CATCH BASIN, INLETS & VALVE VAULTS

All Manholes, Catch Basins, Inlets, and Valve Vaults shall be constructed of reinforced precast concrete ring construction with tongue and groove joints in conformance with the latest revision of ASTM designation C-478. All joints between sections and frames (except sanitary manholes, see Section IIIB Manholes, below) shall be sealed with mastic type bituminous jointing compound. CONTRACTOR shall remove all excess mastic on inside of structure and butter joints with mortar. Manholes are to have offset cones except that no cone shall be used on storm manholes 6'-0" deep or less in which case a reinforced concrete flat top section shall be used, and Valve Vaults shall have concentric cones. Only concrete adjustment rings will be permitted where necessary and shall be limited to two adjustment rings totaling not more than 8" in height. All manholes and catch basin steps shall be copolymer polypropylene with continuous ½" steel reinforcement as manufactured by MA Industries, or approved equal.

AUGER/BORING AND CASING

Casing pipe shall be welded steel pipe, installed where shown on the PLANS. The carrier pipe shall be securely blocked and banded and sanitary and storm sewers shall maintain the specified gradient. Upon installing the carrier pipe the ends shall be sealed with hydraulic cement.

AUGER (OPEN BORE)

The CONTRACTOR shall auger (open bore) where noted on PLANS.

HORIZONTAL AND VERTICAL SEPARATION OF WATER AND SEWER MAINS

Horizontal and vertical separation of water and sewer mains shall be in accordance with Standard Specifications for Water and Sewer Construction in Michigan.

STRUCTURE ADJUSTMENTS

Structures shall be adjusted to the finished grade as shown on PLANS.

*B. SANITARY SEWERS AND APPURTENANCES - INTENTIONALLY OMITTED

*C. WATER MAINS AND APPURTENANCES - INTENTIONALLY OMITTED

D. STORM SEWERS AND APPURTENANCES

STORM SEWER PIPE

Storm sewer pipe shall conform to the following:

(1) Reinforced concrete pipe minimum Class IV in conformance with the latest revision of ASTM designation C76 with C443 flexible gasket joints, except that bituminous mastic joints may be used in grass areas.

(2) Polyvinyl Chloride (PVC) Pipe: ASTM D3034 (4-inch thru 15-inch) or ASTM F679 (18-inch thru 36-inch), rated SDR 35, continually marked with manufacturer's name, pipe size, cell classification, SDR rating. Joints shall be flexible elastomeric seals conforming to ASTM D3212.

(3) Ductile Iron Pipe (DIP) shall conform to ANSI/AWWA C151/21.5, Class 50 cement lined with push on type joints conforming to ANSI/AWWA C111/A21.11.

(4) High Density Polyethylene Pipe (HDPE) Smooth Interior, AASHTO Designation M252 and M294, maximum diameter of 48 inches. Pipe joints and fittings shall be watertight gasketed joints. No band seals will be allowed. (Only permitted in landscape areas with Municipality Approval and/or when specifically indicated on PLANS).

(5) Polyvinyl Chloride (PVC) large diameter closed profile gravity sewer pipe, UNI-B-9: ASTM F794. (Only permitted with Municipality Approval and/or when specifically indicated on PLANS).

Precast tees, bends, and manholes may be used if permitted by the JURISDICTIONAL GOVERNMENTAL ENTITY.

Storm sewer shall include bedding and trench backfill.

MANHOLES, INLETS & CATCH BASINS

Manholes, Inlets and Catch Basins shall be constructed in conformance with Section IIIA Manholes, etc. above. The space between connecting pipes and the wall of the manhole shall be completely filled with non-shrink hydraulic cement mortar. Frames and lids shall be Neenah or approved equal unless specified otherwise on the PLANS. All frames and grates shall be provided such that the flange fully covers the opening plus 2" of the structure as a minimum. * Provide **"Vane"** Type frame & grate for all structures located in curb where gradient exceed 2.0%. Manholes shall include steps, frame & grate, bedding and trench backfill.

FLARED END SECTION

Flared end sections shall be pre-cast reinforced concrete flared end section with an end block cast separate as per the Michigan Department of Transportation Standard 542301 and shall be installed where shown on the PLANS. All flared end sections for storm sewers 12" in diameter and larger shall be installed with a grating per Standard 542311 and/or as detailed on the PLANS. Work shall include end block.

RIP RAP

Stone rip rap consisting of pieces of "A" quality stone 4" to 8" in diameter shall be furnished and installed in accordance with MDOT Specifications and shall be placed where shown on the plans, to a minimum thickness of 12" and a width as indicated on the plans. Broken concrete or concrete blocks will not be acceptable.

FOUNDATION, BEDDING AND HAUNCHING

Foundation, Bedding and Haunching shall be wet coarse aggregate or moist fine aggregate in accordance with the above standards and placed as shown on the detail.

UNDERDRAINS

Pipe underdrains shall be corrugated flexible plastic pipe conforming to AASHTO Designation M252 perforated corrugated polyethylene pipe (PE) with a smooth interior of the diameter indicated on the PLANS and wrapped in a soil filter fabric supplied and installed by the CONTRACTOR. Perforations may be circular or slotted, but shall provide a minimum inlet area of 1.0 square inch per 2.0 linear feet of pipe. CONTRACTOR shall submit fabric and pipe catalogue Specifications for approval by the CLIENT. CONTRACTOR shall bed and backfill the underdrain in one of the following MDOT gradations of aggregate (CA-5, CA-7, CA-11, CA-14 or CA-15).

MISCELLANEOUS

(1) All existing field drainage tile or storm sewers encountered or damaged during construction shall either be restored to their original condition, properly rerouted and/or connected to the storm sewer system.

(2) Footing drains shall be connected to sump pumps or discharged directly into storm sewers. Footing drains or drainage tile shall not be connected to the sanitary sewer.

CONNECTION FOR STORM SERVICE TO STORM MAIN

Connections of storm sewer services to storm sewer mains should be made with manufactured tees when available. Availability of manufactured tees will be a function of the storm sewer material and pipe diameter size of the service sewer and main. If manufactured tees are not reasonably available, connections should be made in accordance with manufacturer's recommendations for all storm sewer other than concrete pipe. For concrete pipe connections without manufactured tees the storm sewer main shall be machine cored and the service sewer connected using non-shrink grout for the void between pipes. The service sewer shall be cut flush with the inside wall of the sewer main and not extend into the inside flow area of the main or otherwise impede flow.

IV. ROADWAY AND PARKING LOT IMPROVEMENTS

STANDARDS

Work shall be completed in accordance with the applicable sections of the Standard Specifications for Road and Bridge Construction, Department of Transportation, State of Michigan, latest edition (hereinafter referred to collectively as the "Standard Specifications") except as modified below and except that payment will be defined as detailed in the contract documents between the CLIENT and the CONTRACTOR. Supplementing the Standard Specifications shall be the applicable sections of the latest editions of the "Supplemental Specifications and Recurring Special Provisions", the "Manual on Uniform Traffic Control Devices for Streets and Highways" and the Michigan Supplement thereto, (hereinafter referred to collectively as the "MUTCD"). Any references to "ENGINEER" in the "Standard Specifications" shall be interpreted as the CLIENT or CLIENT's Construction Representative.

SUBGRADE PREPARATION

The CONTRACTOR shall be responsible for all subgrade compaction and preparation to the lines and grades shown on the plans.

AGGREGATE BASE COURSE

Aggregate Base Course shall be limited to MDOT 22A or 21AA natural aggregate gradation. Aggregate base courses shall be proof rolled as outlined below.

PROOF ROLL

The CONTRACTOR shall proof roll the subgrade with either a 2-axle truck loaded to 27,000 lbs. Or a 3-axle truck loaded to 45,000 lbs. or as specified by the JURISDICTIONAL GOVERNING ENTITY. The CLIENT and JURISDICTIONAL GOVERNING ENTITY shall observe and approve the proof rolling of the subgrade and the base course. Proof rolling tolerances shall be a maximum deflection of 1" for the subgrade and ½" for the base course. The above criteria is intended as a maximum deflection standard and that proof rolling of a majority of the area will have less deflection than specified above. In any case of deficiency, the subgrade and/or base course shall be repaired and retested before proceeding with the pavement construction.

Pavement subgrade material shall not be removed, placed or disturbed after proof roll testing has been completed prior to the pavement construction. Additional testing will be required if the pavement subgrade is disturbed and/or material is removed from or placed on the pavement subgrade after proof rolling approval.

Trucks or heavy equipment shall not travel on any pavement subgrade after final testing prior to pavement construction.

HOT-MIX ASPHALT BASE COURSE

HMA Base Course shall meet the requirements of MDOT or N50 mix design as indicated and shown on the plans. The maximum amount of recycled asphalt pavement allowed shall be 30% in a N30 mix design and 25% in a N50 mix design.

HOT-MIX ASPHALT BINDER AND SURFACE COURSE

HMA binder and surface courses, shall be constructed to the compacted thickness as shown on the PLANS. The base course shall be cleaned and primed in accordance with the JURISDICTIONAL GOVERNING ENTITY. The surface course shall be placed after the base and courses have gone through one winter season, or as directed by the CLIENT. Before applying the surface course, the binder course shall be thoroughly cleaned and primed in accordance with the JURISDICTIONAL GOVERNING ENTITY. Prior to the placement of the surface course, the JURISDICTIONAL GOVERNING ENTITY shall examine the completed pavement, including curb and gutter, and all failures shall be corrected by the CONTRACTOR.

CONCRETE PAVEMENTS

Concrete pavements shall be constructed in accordance with American Concrete Institute Standard ACI330R-08 and as shown on the PLANS.

Slabs and driveway aprons shall be constructed with 6" x 6" - W1.4 x W1.4 welded wire fabric positioned on steel chair supports. Placing fabric during the concrete pouring operation will not be allowed.

Sawing of joints shall commence as soon as the concrete has cured and hardened sufficiently to permit sawing without excessive raveling, but no later than eight hours after the concrete has been placed. All joints shall be sawed to a depth equal to 1/3 of the pavement thickness before uncontrolled shrinkage cracking take place. If necessary, the sawing operation shall occur during the day or at night, regardless of weekends, holidays or weather conditions. The CONTRACTOR shall be aware of jurisdictional noise ordinances and holiday restrictions for scheduling purposes.

The CONTRACTOR is responsible to guard fresh concrete until it sets and hardens sufficiently to prevent people from writing, walking, riding bicycles or otherwise permanently marking, defacing or causing depressions of any type in the concrete. Any concrete so marked will be removed and replaced by the CONTRACTOR at the CONTRACTOR's expense.

The CONTRACTOR shall protect the pavement against all traffic, including that of their own employees or other workers, until test specimens have attained the specified strength.

SIDEWALKS

Concrete sidewalks shall be constructed to width and thickness as shown on the PLANS. Sidewalks shall be thickened to a minimum of 6" at all driveways. All sidewalks shall be MDOT Grade A-2 concrete, on aggregate base as shown on the detail. A ¾" expansion joint shall be provided when meeting existing sidewalk.

CURB AND GUTTER

Curb and gutter shall be as per the detail shown on the PLANS, which shall include compacted aggregate base course under the curb and gutter. All contraction and expansion joints shall be constructed as per the detail.

CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT

The CONTRACTOR shall saw cut and remove the existing concrete curb where shown on the PLANS and install a curb of similar cross section and pavement to that removed (or depressed curb and gutter if shown on the PLANS). Upon completion of the curb and gutter any voids between the existing pavement and the new curb shall be filled with concrete to within 2" of the final surface, which is to be filled with bituminous pavement. The area behind the curb shall be filled and compacted with embankment material within 6" of the top of the new curb. The CONTRACTOR shall then restore the remaining 6" to its original condition (i.e., sod, gravel, topsoil). Where proposed curb connects to an existing curb, the existing curb shall be saw cut and then two 18" long x ¾" (#6) dowel bars shall be drilled and installed 9" into the existing and proposed curb. Bars shall be installed in a location similar to the expansion joint in the curb.

FRAME ADJUSTMENTS

The road contractor shall be responsible for making final adjustments and the setting on a bituminous mastic jointing compound all castings located in the roadway, sidewalks, and parking areas prior to construction of any curbing, sidewalk, or final surface. Any structures that need to be lowered, or raised in excess of 4" shall be completed and the work backcharged against the underground contractor. This Contractor shall also be responsible for cleaning all of the above structures immediately upon completion of his phase of work. This work shall be incidental to the cost of the pavement.

PAVEMENT MARKING - PAINT

The CONTRACTOR shall furnish and apply painted marking lines, letters & symbols of the patterns, sizes and colors where shown on the PLANS. Paint pavement marking shall be applied in accordance with the MDOT Standard Specifications.

PAVEMENT MARKING - THERMOPLASTIC

The CONTRACTOR shall furnish and apply extruded thermoplastic pavement marking lines, letters and symbols of the patterns, sizes and colors where shown on the PLANS. Thermoplastic pavement marking shall be installed in accordance with the MDOT Standard Specifications.

QUALITY CONTROL

The CONTRACTOR shall provide all testing necessary to ensure improvements are in accordance with the project specifications and provide testing documentation that specifications were met.

March 12, 2024 - 12:14 Dwg Name: P:\Oldfom01\dwg\Eng\Final Drawings\Plan Set\Construction Documents\SPECS - DETAILS.dwg Updated By: Chamon

DRAWN BY | REVISIONS | DATE

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Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

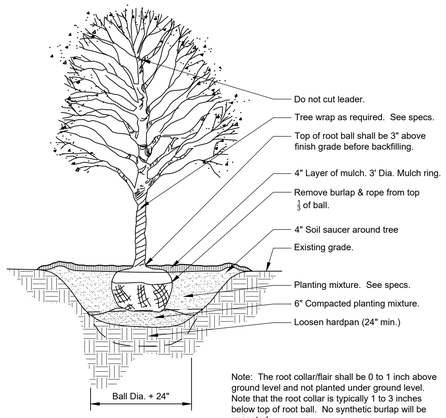
OLD DOMINION FREIGHT LINE - KALAMAZOO
CITY OF KALAMAZOO, MICHICAN
CONSTRUCTION SPECIFICATIONS

PROJ. MGR.: JAR
PROJ. ASSOC.: AJH
DRAWN BY: ALM
DATE: 03/21/2024
SCALE: N.T.S.

SHEET 10 OF 10
ODF.KAMI.01

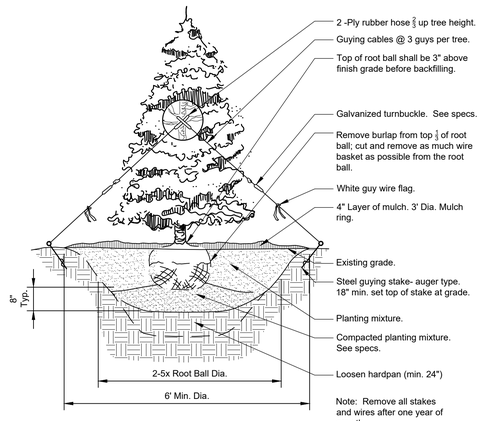
PENDING APPROVAL - NOT FOR CONSTRUCTION

PRELIMINARY ENGINEERING PLANS
for
OLD DOMINION FREIGHT LINE KALAMAZOO
3600 ALVAN ROAD
CITY OF KALAMAZOO, MICHIGAN



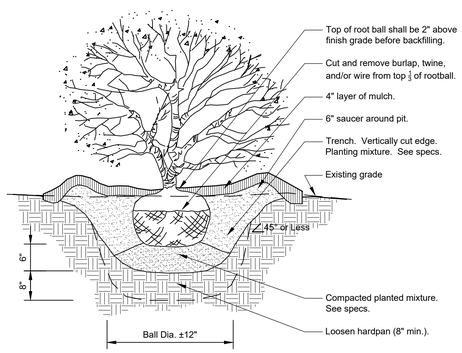
Note: The root collar/flair shall be 0 to 1 inch above ground level and not planted under ground level. Note that the root collar is typically 1 to 3 inches below top of root ball. No synthetic burlap will be accepted.

1 DECIDUOUS TREE PLANTING
1/4" = 1'-0" 32 9343.33-20

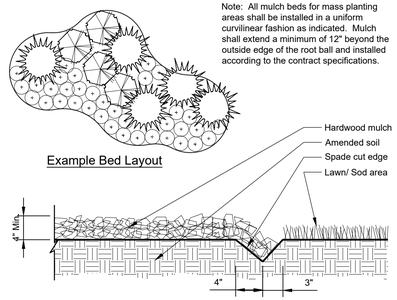


Note: Remove all stakes and wires after one year of growth.

2 CONIFER TREE PLANTING
1/4" = 1'-0" 32 9343.46-01



3 SHRUB PLANTING DETAIL
3/4" = 1'-0" 32 9333.16-05



Note: All mulch beds for mass planting areas shall be installed in a uniform curvilinear fashion as indicated. Mulch shall extend a minimum of 12" beyond the outside edge of the root ball and installed according to the contract specifications.

Example Bed Layout

4 CONTINUOUS MULCH EDGING
1" = 1'-0" 32 9113.26-01

STATE OF MICHIGAN
JENNIFER HENDRICKS
LANDSCAPE ARCHITECT
License No. 3901046965
LICENSED LANDSCAPE ARCHITECT
SEAL
Date: 02/12/2024

Jennifer Hendricks, ASLA, PLA
Expires 11/09/2025

City of Kalamazoo Required Landscaping

Site is not in Natural Features Protection Overlay District. Overlay District requirements not applicable. (Sec.50-6.2)
No adjacent conflicting land uses. No buffer/screening required per ordinance. City planner reserves the right to select additional screening per Section 6.2.H.5.

Required Vehicular Off-Street Parking Areas (Sec.50-7.2(f))

Areas not used for sidewalks, parking spaces, drive aisles, loading, or refuse shall be constructed and maintained as landscaped areas.

The perimeter of a parking lot shall be treated with fencing and/or landscaping along all property lines following Appendix A, 6.2, Landscaping and Open Spaces.

Parking lots with more than two double-loaded aisles will provide internal pedestrian access. The pathway shall be buffered from drive aisles with landscaping or designated parking stalls and delineated with paint where it crosses drive aisles. **On Plan: Employee parking is existing and will remain.**

Landscaping and Open Spaces (Appendix.Zoning Ordinance 6.2)

No one species of tree or shrub may make up more than 50% of the total amount of landscape plantings, except for plantings used for screening.

In all areas where landscaping is required, a minimum of 50% of the surface area shall be covered by living materials.

Minimum sizes of plant materials:

- Deciduous canopy tree: 2-2.5" caliper
- Evergreen tree: 6' height
- Deciduous shrub: 30" height
- Upright evergreen shrub: 30" height
- Spreading evergreen shrub: 24" spread
- Deciduous ornamental tree: 1-1.5" caliper / 6' height

Buffer Areas:

Between land uses, plant materials shall not be placed closer than 4' from the fence or property line. **On Plan: No adjacent differing land uses.**

City Right-Of-Way:

Tree removal or planting in City ROW shall be in accordance with Chapter 42 of City ordinances, and public ROW shall be grass-surfaced. **Any trees in ROW shall be preserved.**

Preservation of Existing Screening:

Regardless of the other provisions under this subsection, existing trees, vegetation, other natural features, and other screening components such as walls, berms, and fences that are located within the required setback of the site, that are healthy or otherwise in good condition, and that provide, in the opinion of the City Planner, an important measure of screening for adjacent properties shall be preserved. When a property is required to provide buffering/screening under the regulations in § 6.2, a site plan shall be provided that identifies all existing trees of 10 inches or greater in diameter measured at breast height located throughout the entire site and which of those trees will be removed; any existing healthy trees in good condition shall only be removed on a showing of good cause. **On Plan: Screening is not required per ordinance, but a significant amount of existing screening (trees, brush) will be preserved.**

Front Yard Setbacks without Paving or Parking areas:

Minimum one tree per 35 lf of street frontage, plus one shrub per 25'. Curb cuts and driveways shall be included in street frontage. **On Plan: Existing trees shall remain. Requirement is met.**

Building Perimeters:

On Plan: No primary structures have been altered. Not applicable.

Parking Lots and Loading Zones:

Perimeter Screening from Public Streets: Min. width = 5'. One tree per 35' linear frontage. Three shrubs per 20' linear frontage. Shrubs shall not be required if a berm, opaque fence, or wall of minimum 3' is erected. **On Plan: Trees are existing and will remain. Minimum landscape area width exceeded. (300 lf parking area street frontage / 5) x3 = 180 shrubs required and provided.**

Interior Parking Lot Landscaping: Lots having more than 30 parking spaces shall provide the following. 5% of the entire parking lot area shall be landscape area. One tree per each 300sf of internal landscape area. Internal landscape areas shall be dispersed on the site to break up the expanse of pavement and shall be curbed. **See below.**

Special Provisions for Existing Sites:

Landscaping along the street and as a buffer between adjacent land uses will take priority over parking lot and site landscaping, particularly where there is no excess parking over that required by ordinance. Where parking lot landscaping cannot be provided, additional landscaping along the street or in the buffer areas may be substituted. **On Plan: Mature existing trees are provided in existing lot. Landscaping shall be provided adjacent to ROW and existing trees shall be preserved.**

Incentives to Preserve Existing Trees. The City encourages the preservation of quality and mature trees by providing credits toward the required landscaping. Trees intended to be preserved shall be indicated with a special symbol on the site plan and shall be protected during construction through use of a fence around the drip line (an illustration of which is provided in the Recommended Landscaping Standards in the City of Kalamazoo). To obtain credit, the preserved trees shall be of a high quality and at least 2 1/2 inches DBH. Trees to be preserved shall be counted for credit only if they are located on the developed portion of the site as determined by Site Plan Review Committee or Planning Commission. The credit for preserved trees shall be as shown in Table 6.2-1. Any preserved trees for which credit is given, and that are lost to damage or disease within two years such credit is awarded shall be replaced by the landowner with trees otherwise required. **On Plan: Significant numbers of existing trees preserved in all areas, and tree removal has been minimized via careful placement of required drainage basins.**

Landscape Notes:

1. Seed/ Sod limit line is approximate. Seed/ Sod to limits of grading and disturbance. Contractor responsible for restoration of any unauthorized disruption outside of designated construction area.
2. Contractor responsible for erosion control in all seeded/ sodded areas. Tree mulch rings in turf areas are 5' diameter. Contractor shall provide a mulch ring around all existing trees within the limits of work. Remove all existing grass from area to be mulched and provide a typical spade cut edge. Landscape Fabric shall not be installed under mulch. Root flares shall be at or above grade, per specifications, and all rope/cord shall be removed from the base of tree trunks.
3. Bedlines are to be spade cut to a minimum depth of 3". Curved bedlines are to be smooth and not segmented.
4. All planting, beds shall receive top dressing of mulch. Landscape fabric shall not be installed under mulch.
5. Do not locate plants within 10' of utility structures or within 5' horizontally of underground utility lines unless otherwise shown on plans. Consult with Landscape Architect if these conditions exist.
6. For Lump Sum Contracts, plants and other materials are quantified and summarized for the convenience of the Owner and jurisdictional agencies only. Confirm and install sufficient quantities to complete the work as drawn and specified. No additional payments will be made for materials required to complete the work as drawn and specified.
7. For Unit Price Contracts, payments will be made based on actual quantities installed as measured in place by the Owner's Representative.
8. It is the responsibility of the contractor to locate and provide plant material as specified on this plan. The contractor may submit a request to provide substitutions for the specified plant material under the following conditions:
   a. Any substitutions proposed shall be submitted to the project owner's representative within two weeks of the award of contract. Substitutions must meet equivalent design and functional goals of the original materials as determined by the owner's representative. Any changes must have the approval of the owner's representative,
   b. The request will be accompanied by at least three notices from plant material suppliers that the plant material specified is not available and will not be available prior to construction.
10. Verify site conditions and information on drawings. Promptly report any concealed conditions, mistakes, discrepancies or deviations from the information shown in the Contract Documents. The Owner is not responsible for unauthorized changes or extra work required to correct unreported discrepancies. Commencement of work shall constitute acceptance of conditions and responsibility for corrections
11. A minimum of two working days before performing any digging, call underground service alert for information on the location of natural gas lines, electric cables, telephone cables, etc. The contractor shall be responsible for location and protection of all utilities, and repair of any damage resulting from his work at no additional cost to the owner.
12. Contractor shall promptly repair all damages to existing site at no cost to owner.
13. Refer to landscape specifications for additional conditions, standards, and notes.

DATE	REVISIONS	DRAWN BY
03/22/2024	REVISION	JSH

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Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers

OLD DOMINION FREIGHT LINE KALAMAZOO
CITY OF KALAMAZOO, MICHIGAN
LANDSCAPE COVER SHEET

PROJ. MGR.: JAR
PROJ. ASSOC.: ----
DRAWN BY: JSH
DATE: 2/12/2024
SCALE: AS SHOWN

SHEET
L1 OF L3
ODF.KAM101

March 22, 2024 15:08 Dwg Name: P:\Odfkam01\dwg\Landplan\01-Preliminary\03-Landscape-Plan.dwg Updated By: JHendricks

EXISTING SMALL TREE
TO BE REMOVED, TYP.

EXISTING TREE LINE
TO REMAIN, TYPICAL

EXISTING TREE LINE
TO REMAIN, TYPICAL

RESTORE TURF
AS NEEDED, TYPICAL

EXISTING TREE
TO REMAIN, TYPICAL

RESTORE TURF
AS NEEDED, TYPICAL

EXISTING TREE
TO REMAIN, TYPICAL

EXISTING TREE LINE
TO REMAIN, TYPICAL

EXISTING TREE LINE
TO REMAIN, TYPICAL

N

0 20 40 80

SCALE: 1"=40'

Note: Locations of all existing trees and tree lines and trees are approximate and based on available satellite data. Locations are approximate and field adjustments may be necessary.

CONCEPT PLANT SCHEDULE

3` DECIDUOUS SHRUB	72
4` DECIDUOUS SHRUB	42
5` EVERGREEN SHRUB	44
6` DECIDUOUS SHRUB	21
STORMWATER SEED MIX LIMITS PRELIMINARY AND SUBJECT TO ADJUSTMENT BEFORE FINAL	13,687 sf

DATE	REVISIONS	DRAWN BY
03/22/2024	REVISION	JSH

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Construction Managers • Environmental Scientists • Landscape Architects • Planners

OLD DOMINION FREIGHT LINE KALAMAZOO

CITY OF KALAMAZOO, MICHIGAN

PRELIMINARY LANDSCAPE PLAN

PROJ. MGR.: JAR
PROJ. ASSOC.: ----
DRAWN BY: JSH
DATE: 2/12/2024
SCALE: AS SHOWN

SHEET
L2 OF L3
ODF.KAM101

March 22, 2024 - 15:08 Dwg Name: P:\Dotfkam01\dwg\Landplan\01-Preliminary\03-Landscape-Plan.dwg Updated By: jhendricks

GENERAL PLANTING SPECIFICATIONS:

PART 1 - GENERAL

1-01 DESCRIPTION:

A. Provide trees, shrubs, perennials and groundcovers as shown and specified. This work includes:
   1. Spreading of topsoil or soil preparation
   2. Trees, shrubs, perennials and groundcovers
   3. Planting mixes
   4. Mulch and planting accessories
   5. Fertilizer and herbicide
   6. Maintenance
   7. Warranty of plant material

B. The Contractor shall verify all existing conditions and dimensions in the field prior to bidding and report any discrepancies to the Owner or his/her representative.

1-02 QUALITY ASSURANCE:

A. Comply with site work requirements

B. Plant names indicated must comply with 'Standardized Plant Names' as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties which are not listed should conform with those generally accepted by the nursery trade. Stock should be legibly tagged.

C. All plant materials shall conform to the 'American Standards for Nursery Stock' (ASNS), latest edition, published by the American Association of Nurserymen, Washington, D.C.

D. All plant material shall be grown and supplied within a 50 mile radius of the project for a minimum of two full growing seasons.

E. Adhere to sizing requirements as listed in the plant list and/or bid form for the project. A plant shall be measured in its natural standing position.

F. Stock that is furnished shall be at least the minimum size shown. With permission of the landscape architect, substitution from the specified plant list will be accepted only when satisfactory evidence in writing is submitted to the landscape architect, showing that the plant specified is not available. Requests for approval of substitute plant material shall include common and botanical names and size of substitute material. Only those substitutions of at least equivalent size and character to that of the specified material will be approved. Stock which is larger than that which is specified is acceptable with permission of the landscape architect, providing there is no additional cost and that the larger plant material will not be cut down in order to conform to the size indicated.

G. All shrubs shall be dense in form. Shrub liners do not meet these specifications. Shrubs specified by height shall have a spread that is equal to the height measurement. Shrubs which are specified by spread shall exhibit the natural growth habit of the plant by having a greater spread than height.

H. All plant materials are subject to inspection and approval. The landscape architect and Owner reserve the right to select and tag all plant material at the nursery prior to planting. The landscape architect and Owner reserve the right to inspect plant material for size and condition of root systems, the presence of insects and diseases, injuries and latent defects (due to Contractor negligence or otherwise), and to reject unacceptable plant material at any time during progress of the project.

I. Container grown deciduous and/or evergreen shrubs will be acceptable in lieu of balled and burlapped shrubs subject to specified limitations for container grown stock. Size of container grown material must conform to size/height requirements of plant list.

1-03 DELIVERY, STORAGE & HANDLING:

A. Fertilizer shall be delivered in original, unopened and undamaged packaging. Containers shall display weight, analysis and manufacturer's name. Store fertilizer in a manner that will prevent wetting and deterioration.

B. Take all precautions customary concerning proper trade practice in preparing plants for transport. Plants shall be dug, packed and transported with care to ensure protection against injury. Inspection certificates required by law shall accompany each shipment invoice or order to stock and on arrival, the certificate shall be filed with the landscape architect . All plants must be protected from drying out. If plant material cannot be planted immediately upon delivery, said material should be properly protected in a manner that is acceptable to the landscape architect . Heeled-in plants must be watered daily. No plant shall be bound with rope or wire in a manner that could strip bark or break or shear branches.

C. Plant material transported on open vehicles should be covered with a protective covering to prevent wind burn.

D. Dry, loose topsoil shall be provided for planting bed mixes. Muddy or frozen topsoil is unacceptable as working with medium in this condition will destroy its structure, making root development more difficult.

1-04 PROJECT CONDITIONS:

A. Notify landscape architect at least seven (7) working days prior to installation of plant material.

B. It shall be the Contractor's responsibility to locate and protect all existing above and below ground utilities.

C. The Contractor shall provide, at his/her own expense, protection against trespassing and damage to seeded areas, planted areas, and other construction areas until the preliminary acceptance. The Contractor shall provide barricades, temporary fencing, signs, and written warning or policing as may be required to protect such areas. The Contractor shall not be responsible for any damage caused by the Owner after such warning has been issued.

D. The Contractor shall be responsible for the protection of crowns, trunks and roots of existing trees, plus shrubs, lawns, paved areas and other landscaped areas that are to remain intact. Existing trees, which may be subject to construction damage, shall be boxed, fenced or otherwise protected before any work is started. The Owner desires to preserve those trees within and adjacent to the limits of construction except those specifically indicated to be removed on the Drawings. The contractor shall erect protective tree fencing and tree armor at locations indicated on the drawings and around all trees on site which are to be preserved. Protective fencing shall be erected between the limits of construction and any tree preservation areas shown on the Drawings.

E. A complete list of plants including a schedule of sizes, quantities and other requirements is shown on the Drawings and on the bid form. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.

1-05 PRELIMINARY ACCEPTANCE:

A. All plantings shall be maintained by the Contractor for a period of 90 days after preliminary acceptance by the Owner or his/her representative. Maintenance shall include, but is not limited to: mowing and edging turf, pulling weeds, watering turf and plant material and annual flower maintenance.

1-06 WARRANTY:

A. All plant material (excluding annual color), shall be warranteed for one (1) year after the end of the 90 day maintenance period. The end of the maintenance period is marked by the final acceptance of the Contractor's work by the Owner or his/her representative. Plant materials will be warranteed against defects including death and unsatisfactory growth, except for defects resulting from abuse or damage by others, or unusual phenomena or incidents which are beyond the control of the Contractor. The warranty covers a maximum of one replacement per item.

PART 2 - PRODUCTS

2-01 PLANT MATERIALS:

A. Plants: Provide typical of their species or variety, with normal, densely developed branches and vigorous, fibrous root systems. Only sound, healthy, vigorous plants which are free from sunscald injuries, disfiguring knots, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation shall be provided. All plants shall have a fully developed form without voids and open patches.
   1. Balled and burlapped plants shall have a firm natural ball of earth of sufficient diameter and depth to encompass a root system necessary for a full recovery of the plant. Root ball sizes shall comply with the latest edition of the 'American Standards for Nursery Stock' (ASNS). Root balls that are cracked or mushroomed are unacceptable.
   2. Container grown stock should be grown for an amount of time that is of sufficient length for the root system to have developed enough to hold its soil togehter, firm and whole. Plants will not be loose in their containers, nor shall they be pot-bound and all container grown stock will comply with the sizes stated on the plant list.
   3. No evidence of wounds or pruning cuts shall be allowed unless approved by the Landscape Architect.
   4. Evergreen trees shall be branched to the ground. The height of evergreen trees are determined by measuring from the ground to the first lateral branch closest to the top. Height and/or width of other trees are measured by the mass of the plant not the very tip of the branches.
   5. Shrubs and small plants shall meet the requirements for spread and/or height indicated in the plant list. The height measurement shall be taken from ground level to the average height of the top of the plant, not the longest branch. Single stem or thin plants will not be accepted. Side branches shall be flushed with growth and have good form to the ground. Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.

2-02 ACCESSORIES:

A. Topsoil:
   1. Topsoil shall be fertile, natural topsoil of a loamy character, without admixture of subsoil material. Topsoil shall be reasonably free from clay, lumps, coarse sand, stones, plants, roots, sticks and other foreign materials with a pH between 6.5 to 7.0.

B. Topsoil for seed areas shall be a minimum of 6".

C. Soil amendments shall be as follows:
   1. For trees and shrubs the plant pit will be backfilled with pulverized black dirt.
   2. For perennials and ornamental grasses the soil mixture will be as follows: General Purpose Peat Based Mix. Top beds with 8" of CM-63 and till into existing beds to a depth of 8".

D. Fertilizer:
   1. For trees and shrubs use: 14-4-6 briquettes 17 g or equivalent. Follow manufacturer's recommendation for application.
   2. For turf areas use 6-24-16 with micronutrients with minor elements 3.0 % S, .02% B, .05% Cu, 1.0% Fe, .0006% Mo, .10% Mn

E. Herbicide:
   1. Round-Up or approved equal

F. Mulch:
   1. Bark mulch shall be finely shredded hardwood bark which has been screened and is free of any green foliage, twigs, rocks, sawdust, wood shavings, growth or germination inhibiting ingredients, or other foreign materials. .
   2. Mushroom compost

G. Water:
   1. Water service will be available on the site, with the cost of water being paid by the Owner. Transporting of the water from the source to the work areas shall be the responsibility of the Landscape Contractor. All necessary hose, piping, tank truck, etc. shall be supplied by the Landscape Contractor.

H. Guying:
   1. Stakes: 5/8" x 40" steel eye anchor with 4" helix
   2. Cable:
      a. Trees under 5": flexible 1/8" galvanized aircraft cable, 7x7 strand or approved equal
      b. Trees 5" and over: flexible 3/16" galvanized aircraft cable, 7x7 strand or approved equal.
   3. Turnbuckles: 5/16", eye and eye, with 4" takeup.
   4. Hose: new two-ply reinforced rubber hose, minimum 1/2" I.D.

I. Tree wrap: Burlap tree wrap 4" wide.

J. Twine: Soft nursery jute.

PART 3 - INSTALLATION OF PLANT MATERIAL

3-01 FIELD VERIFICATION:

A. Examine proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.

3-02 PREPARATION:

A. All planting techniques and methods shall be consistent with the latest edition of 'Horticulture Standards of Nurserymen, Inc.' and as detailed on these Drawings.

B. Planting shall be performed by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.

C. All underground utilities must be located and marked clearly.

D. Apply Round-Up or approved equivalent to kill any existing vegetation in all areas to be planted. Confirm length of waiting period between chemical application and plant installation with manufacturer. Do not begin planting operations until prescribed post-application waiting period has elapsed. Take extreme care to avoid chemical drift to adjoining properties of landscape plantings.

E. Prior to all planting, rototill all areas to be landscaped to prepare for plant installation to a minimum depth of 12". Eliminate uneven areas and low spots. Maintain lines, levels, profiles and contour. Changes in grade are to be gradual. Blend slopes into level areas. Remove all debris, weeds and undesirable plants and their roots from areas to be planted. Remove all concrete slag larger than 2" in diameter.

F. Topsoil shall be spread over the site at a minimum depth of 6". Those areas which are indicated as prairie or natural areas on the Drawings shall have a minimum topsoil depth of 18".

G. It shall be the responsibility of the landscape contractor to prepare all seeded areas by disking and raking prior to planting seed. Soil shall be loosened and scarified to a minimum depth of 6". Fine grading of all seeded areas is required. Maximum size of stone or topsoil lump is 1".

H. Locate all plant material as indicated or as approved in the field by the Landscape Architect. If obstructions are encountered which are not shown on the drawings, then do not proceed with planting operations until alternate plant locations have been selected.

I. Planting holes shall be constructed as shown on the planting details. Holes shall be hand dug or machine dug. Great care will be taken to not excavate the hole deeper than the root ball and the diameter shall be a minimum of two times the root ball width. Remove any materials encountered in excavation that may be injurious to plant growth, including stones larger than 2" in diameter or other debris. Soil to be used as backfill should be pulverized.

J. Provide pre-mixed planting mixture for use around root systems and root balls of the plants. The mixtures are outlined in section B of part 2-02.

K. Prior to planting, provide additional topsoil to all planting beds to bring the finish grade of the bed to 2" above lawn grade and to finish grade of adjacent hard surface grades.

L. Add 2" thickness of mushroom compost to all annual, perennial and groundcover beds. Finish grade bed and install plants.

3-03 PLANTING PROCEDURES:

A. Set plant material in the planting hole to proper grade and alignment. Set plants upright and plumb. Set plant material root flare 2" above the adjacent finish grade. Remove burlap from top 1/3 of root ball. Remove treated burlap (green). Cut and remove or cut and fold down upper half of wire basket, dependent upon tree size. Backfill hole by firmly tamping soil to avoid any air pockets or voids. All ropes/cords shall be removed from base of trunk.

B. Set balled and burlapped plants in the planting hole and compact 8" of soil around the base of the ball. Backfill remaining space with planting mixture. Water plants immediately after planting to eliminate all voids and thoroughly soak the plant root ball.

C. Space groundcover plants according to dimensions given on the plans. Adjust spacing as necessary to evenly fill planting bed with indicated number of plants. Plant to within 18" of the trunks of trees and shrubs or at the edge of the plant ball, whichever is closest. Plant to within 12" of edge of bed.

D. Mulching:
   1. Install 4" depth of mulch around all tree and shrub beds as indicated on drawings or planting details. Mulch shrub planting areas as continuous beds. Do not place mulch directly against tree trunk; form mulch to create an inverted cone around trunk.
   2. Mulch perennial, groundcover and annual planting beds with 2" mushroom compost. Water mulched areas thoroughly after placing mulch.

E. Tree wrapping is not required, unless the Contractor feels it is necessary due to characteristics of a particular species or past experience with the species. The landscape architect will be notified as to which trees are to be wrapped and shall inspect the trunk(s) before wrapping. Tree wrap will not be used to cover damage or defects. When wrapping is done, trunks will be wrapped spirally with approved tree wrapping tape that is not less than 4" wide, and securely tied with suitable cord at the top, bottom and 2" intervals along the trunk. Wrap from ground to the height of the first branch.

F. Staking and guying of trees is optional. If the Contractor chooses to stake all or part of the trees, he/she shall use the method specified in the planting details. One (1) stake is to be used on trees of 1" caliper and under, or 4' height and under. Two (2) stakes are to be used on trees of 1" to 2 3/4" caliper. Guy trees of 3" caliper or larger at three (3) per tree. The root ball will not be pierced with a stake. Stakes are to be driven at least eighteen (18) inches into subsoil below the planting hole. Stakes and wire attachments shall be removed after three months for spring planted material and by the following May for fall planted stock by the Contractor. Staking and guying should be done immediately after lawn seeding or sodding operations.

G. Seeding of specified lawn areas on plans will be treated as follows:
   1. Topsoil shall be spread over all areas to be seeded to a minimum depth of 6" when compacted (to be performed by others).
   2. Seed mixture and application rate - use Premium seed mix as supplied by Arthur Clesen, Inc. Apply at a rate of 5 lbs./1000 s.f.
   3. Apply fertilizers and conditioners at the rate specified per soil test findings. In lieu of soil test results, apply two (2) tons of ground agricultural limestone and 1000 lbs. 10-10-10 or equivalent analysis fertilizer per acre. At least 40% of the fertilizer nitrogen shall be of an organic origin.
   4. Soil preparation areas where vehicular traffic has compacted the soil shall be loosened/scarified to a minimum depth of 6" before fertilizing and seeding. Fine grading of all seeded areas is required. Maximum size of stone or topsoil lump is 1".
   5. Watering seeded areas shall be done to ensure proper germination. Once seeds have germinated, watering may be decreased but the seedlings must never be allowed to dry out completely. Frequent watering should be continued approximately four (4) weeks after germination or until grass has become sufficiently established to warrant watering on an 'as needed' basis.
   6. Turf is being established on a variety of slope conditions. It shall be the Contractor's responsibility to determine and implement whatever procedures he/she deems necessary to establish the turf as part of his/her work. Seeded areas will be accepted when all areas show a uniform stand of the specified grass in healthy condition and at least 90 days have elapsed since the completion of this work. The Contractor shall submit with his/her bid a description of the methods and procedures he/she intends to use.

H. Erosion Control Blanket
   1. Erosion Control Blanket shall be installed per manufacturer's recommendation in all areas shown on the plan.
   2. Install S-75 Erosion Control Blanket as manufactured by North American Green or approved equal.
   3. Blanket should be premarked with staple pattern.
   4. Staples should be 8" wire staples, applied at two (2) per square yard minimum.
   5. Suitable erosion control practices shall be maintained by the CONTRACTOR in accordance with Low Impact Development Handbook for the State of Alabama and all applicable Soil Erosion and Sedimentation Control ordinances and the PLANS.

I. Sodding of specified lawn areas on plans will be completed as follows:
   1. Rake soil surface to receive sod to completely remove any soil crust no more than one day prior to laying sod.
   2. Moisten prepared surface immediately prior to laying sod. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
   3. Sod shall be laid within 24 hours from the time of stripping. Do not plant dormant sod or if the ground is frozen.
   4. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or sod. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent sod.
   5. Place top elevation of sod 1/2 inch below adjoining edging or paving.
   6. Water sod thoroughly with a fine spray immediately after planting.
   7. After sod and soil have dried, roll seeded areas to ensure a good bond between the sod and soil, and to remove minor depressions and irregularities.
   8. Sodded slopes 3:1 or greater shall be staked to prevent erosion and washout.
   9. Warranty sodding for a period of one (1) year from the end of the 90 day maintenance period. If sod fails or lacks vigor and full growth as determined by the Landscape Architect, the Contractor will repeat site preparation operations and re-sod affected areas at the Contractor's expense.
   10. Note: Sod shall be regionally sourced and appropriate, and is required in all areas indicated on the plans as well as areas which have been affected by construction. Sod can be placed as long as water is available and the ground surface can be properly prepared. Sod shall not be laid on frozen or snow-covered ground. Sod shall be strongly rooted, not less than two (2) years old and free of weeds and undesirable native grasses. Sod should be machine cut to pad thickness of 3/4" (plus or minus 1/4"), excluding top growth and thatch. Provide only sod capable of vigorous growth and development when planted (viable, not dormant). Provide sod of uniform pad sizes with maximum 5% deviation in either length or width. Broken pads or pads with uneven ends will not be acceptable. Sod pads incapable of supporting their own weight when suspended vertically with a firm grasp on the upper 10% of pad will not be accepted.

J. Timing of plant material and seeding operations:
   1. Seeding of specified areas shall occur when the soil temperature is above 55° F. No seed shall be sown during periods of high winds, or when the ground is not in proper condition for seeding (see section 3-02 (G)). Seeding operations for the specified mixes shall occur per manufacturer's recommendation. The mixes containing bluegrass and fescue seed must have six weeks to harden off for winter survival.
   2. Sod shall be installed when the ground is not frozen or snow covered and temperatures are less than 80° F. It shall not be placed during a period of extended drought.
   3. Herbaceous ornamental plants shall be planted in winter when dormant, in spring or after last frost, or in fall; no plantings shall be installed in summer.
   4. Spring planting of woody ornamental plants shall be performed between fall and spring, and plants shall not be planted in June, July or August.

3-04 MAINTENANCE:

A. All plantings shall be maintained by the Contractor for a period of 90 days after preliminary acceptance by the Owner or his/her representative. Maintenance shall include but is not limited to: mowing and edging turf, pulling weeds, watering turf areas and plant material plus annual flower maintenance. The Contractor will reset settled plants to proper grade and position. Dead material will be removed. Stakes and guy wires will be tightened and repaired as required.

3-04 ACCEPTANCE:

A. All plant material (excluding annual color), shall be warranteed for one (1) year after the end of the 90 day maintenance period. The end of the maintenance period is marked by the final acceptance of the Contractor's work by the Owner or his/her representative.

3-06 SITE CLEAN-UP:

A. The Contractor shall protect the property of the Owner and the work of other contractors. The Contractor shall also be directly responsible for all damage caused by the activities and for the daily removal of all trash and debris from his/her work area to the satisfaction of the landscape architect .

DATE	REVISIONS	DRAWN BY
03/22/2024	REVISION	JSH

Manhard CONSULTING
303 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.691.8200 fx 630.691.8585 manhard.com
Civil Engineers • Structural Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

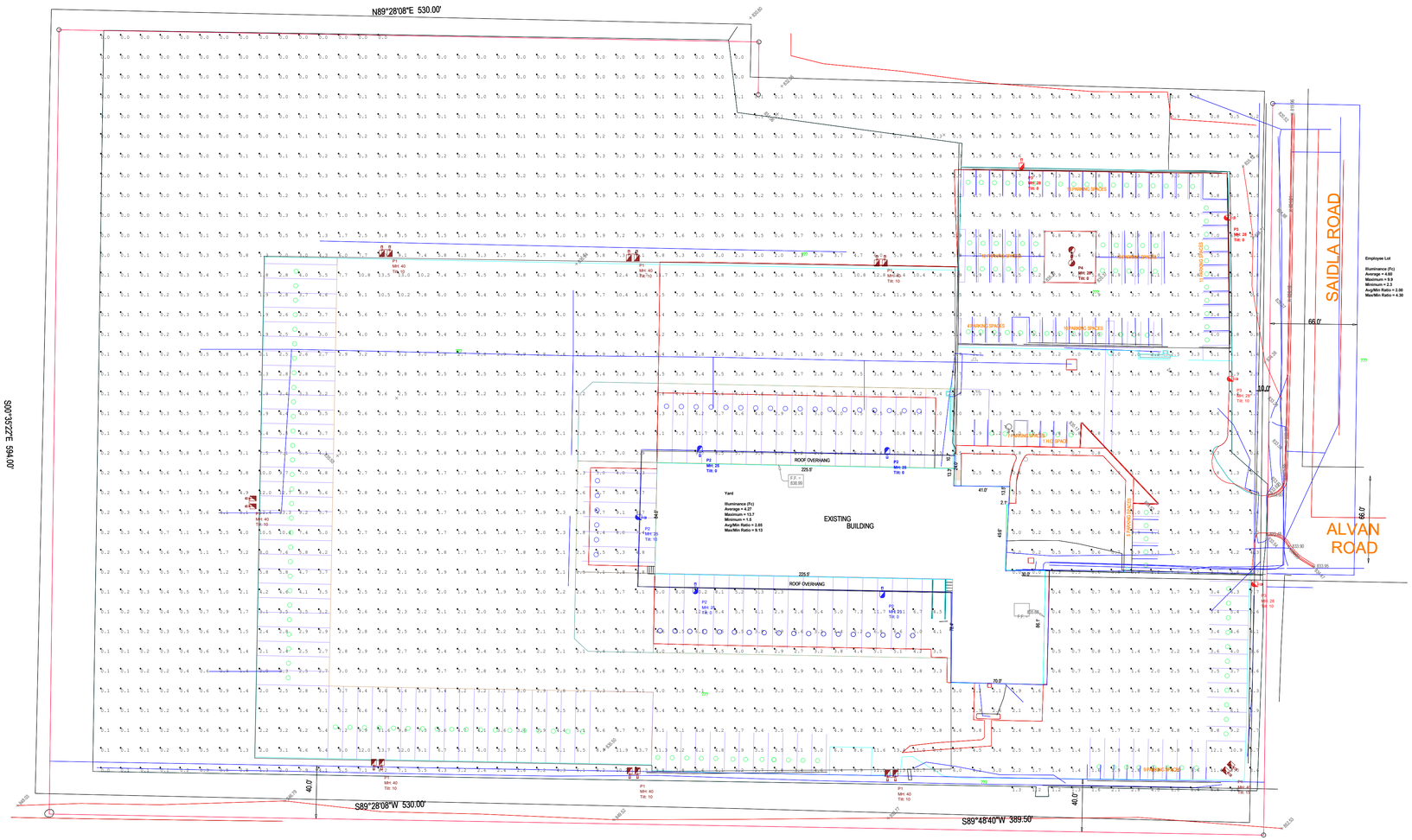
OLD DOMINION FREIGHT LINE KALAMAZOO
CITY OF KALAMAZOO, MICHIGAN
LANDSCAPE SPECIFICATIONS

PROJ. MGR.: JAR
PROJ. ASSOC.: ----
DRAWN BY: JSH
DATE: 2/12/2024
SCALE: AS SHOWN

SHEET
L3 OF L3
ODF.KAM101

Luminaire Schedule					
Symbol	Qty	Lum. Watts	LLF	Arrangement	Description
	8	545.6631	0.900	Twin	RSX4 LED P6 50K R4
	5	311.92	0.900	Single	RSX3 LED P4 50K R4
	4	311.92	0.900	Single	RSX3 LED P4 50K R3
	1	311.92	0.900	Back-Back	RSX3 LED P4 50K R5

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Overall Site	Fc	2.69	13.7	0.0	N.A.	N.A.
Employee Lot	Fc	4.60	9.9	2.3	2.00	4.30
Yard	Fc	4.27	13.7	1.5	2.85	9.13



CED NATIONAL ACCOUNTS DESIGN SOLUTIONS

Designed By:

Date:12/21/2023

Scale:

ODFL Kalamazoo

2025 MASTER PLAN LAND DEVELOPMENT

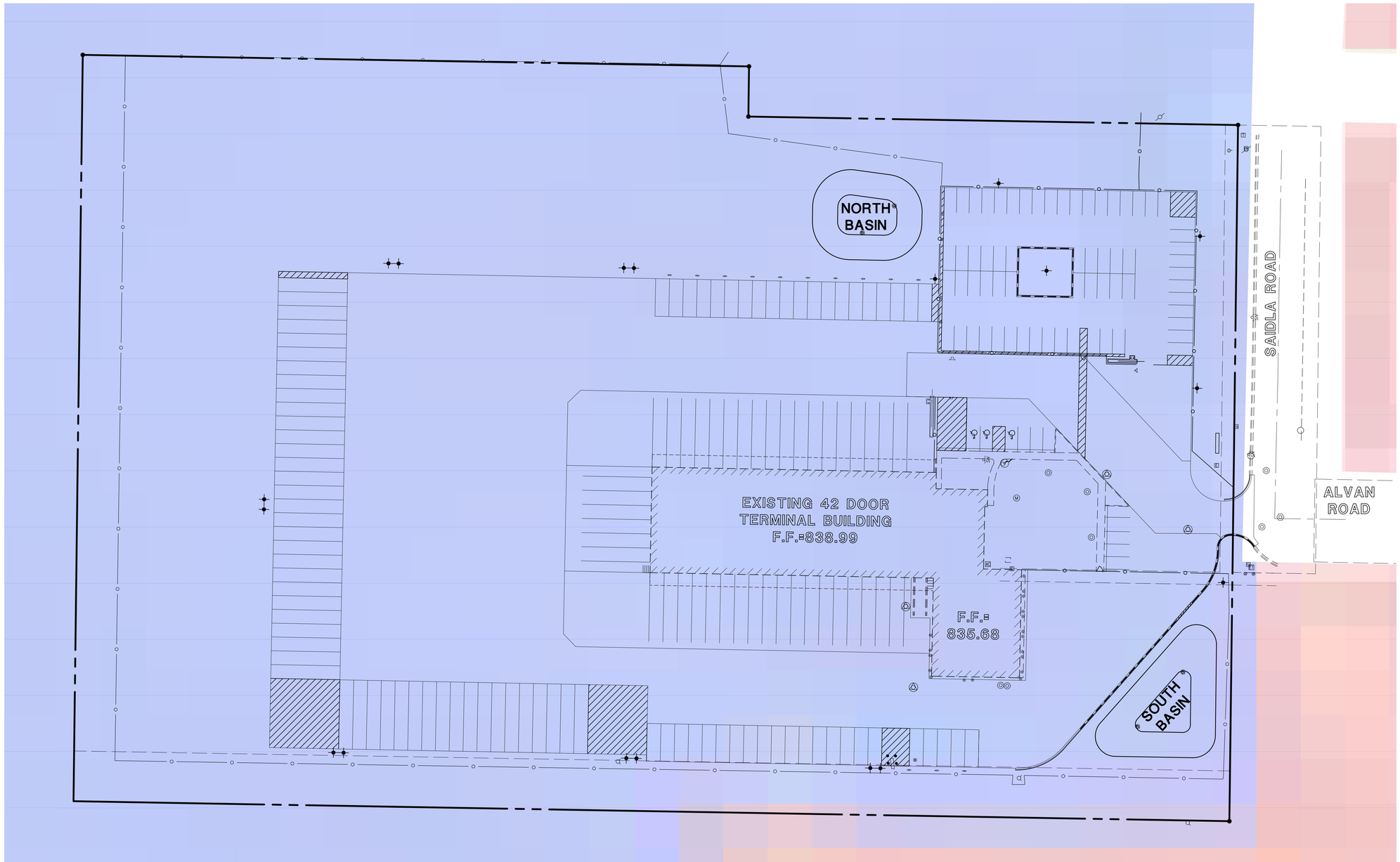
INDUSTRIAL

COMMERICAL

N

0 20 40 80

SCALE: 1"=40'



DRAWN BY

REVISIONS

DATE

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Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers • Surveyors • Water Resource Engineers

Construction Managers • Environmental Scientists • Landscape Architects • Planners

OLD DOMINION FREIGHT LINE - KALAMAZOO

CITY OF KALAMAZOO, MICHICAN

VICINITY MAP

PROJ. MGR.:	JAR
PROJ. ASSOC.:	MTM
DRAWN BY:	CLH
DATE:	03/21/2024
SCALE:	1" = 40'

SHEET

1 of 1

ODF.KAMI.01

March 21, 2024 - 10:06 Dwg Name: P:\Old\Kami01\Vault\Engr\Final Drawings\Exhibits\Engr\Vicinity Map.dwg Updated By: Chrismon