

ENGINEER/SURVEYOR



LAND DEVELOPMENT SERVICES

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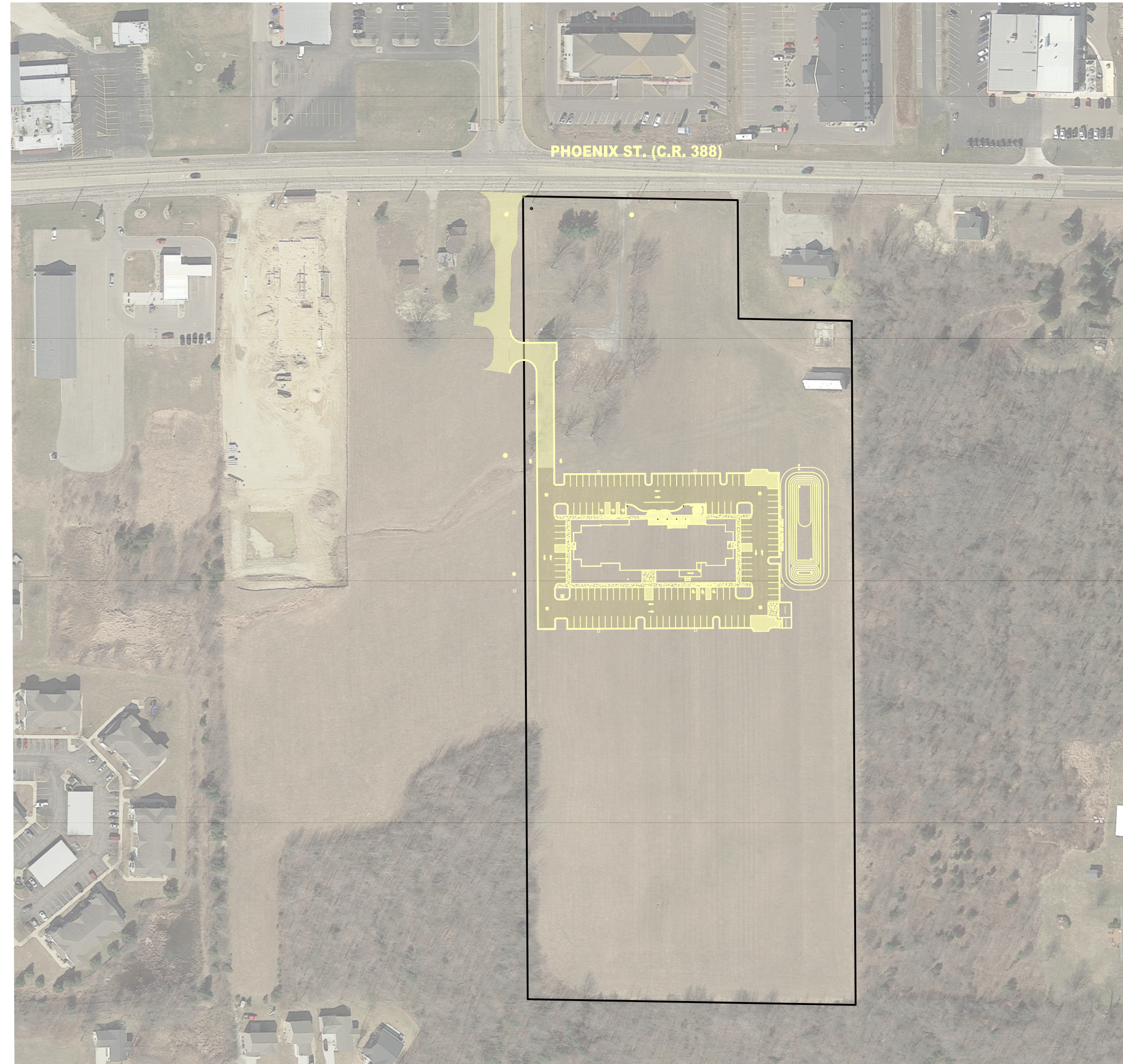
REQUIRED PERMITS

VAN BUREN COUNTY DRAIN COMMISSION SESC PERMIT
VAN BUREN COUNTY ROAD COMMISSION RIGHT-OF-WAY PERMIT
EGLE ACT 399 PERMIT

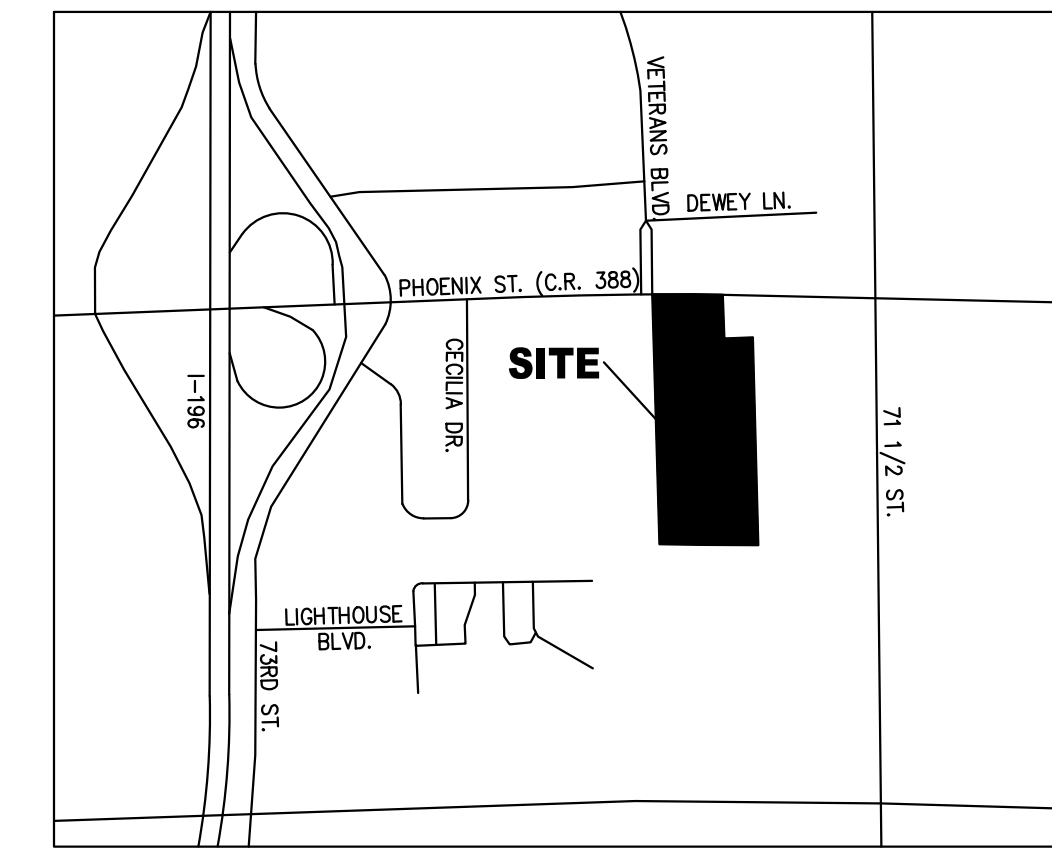
SITE PLAN

SOUTH HAVEN HOTEL

SECTION 12, TOWN 1 SOUTH, RANGE 17 WEST
SOUTH HAVEN TOWNSHIP, VAN BUREN COUNTY, MICHIGAN



SITE MAP
SCALE: 1" = 150'



VICINITY MAP
SCALE: 1" = 1000'

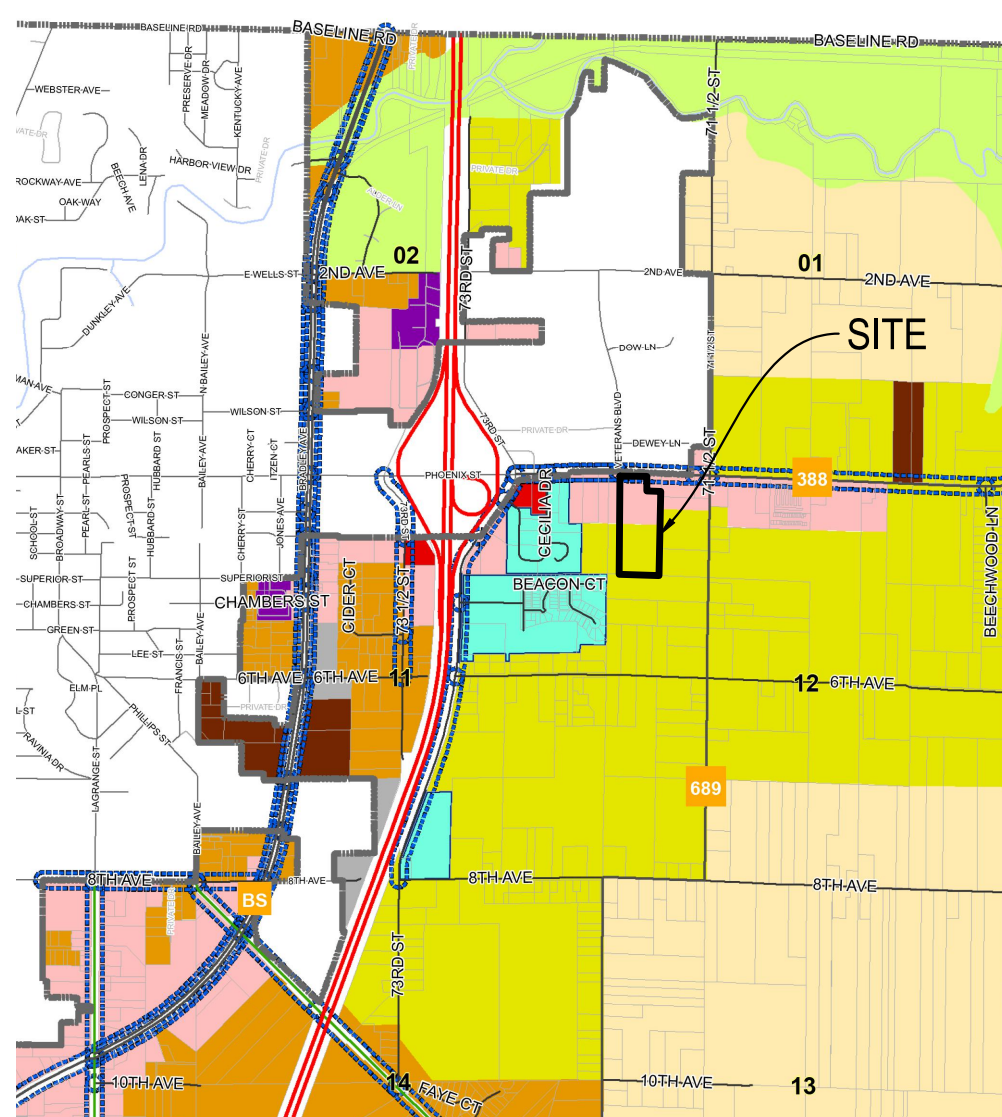
SHEET INDEX

- C1 COVER
- C2 TOPOGRAPHIC SURVEY & DEMOLITION PLAN
- C3 SITE PLAN
- C4 UTILITY PLAN
- C5 GRADING PLAN

REFERENCES

- ARCHITECTURAL PLAN
- LANDSCAPE PLAN
- PHOTOMETRIC PLAN
- SOUTH HAVEN TWP STANDARD DETAILS

SOUTH HAVEN TOWNSHIP ZONING MAP & LEGEND



ZONING

ZONED: CSC: COMMUNITY SERVICE COMMERCIAL
MDR: MEDIUM DENSITY RESIDENTIAL

FUTURE LAND USE PER THE 2018 MASTER PLAN:
• COMMERCIAL
• MULTI-FAMILY / ATTACHED RESIDENTIAL / RESORT

South Haven Twp. Zoning, 2021

- (roo) RESIDENTIAL COMMERCIAL OVERLAY
- (rd) RESOURCE DEVELOPMENT
- (i) INDUSTRIAL
- (nsc) NEIGHBORHOOD SERVICE COMMERCIAL
- (csc) COMMUNITY SERVICE COMMERCIAL
- (hsc) HIGHWAY SERVICE COMMERCIAL
- (hc) HEAVY COMMERCIAL
- (ldr) LOW DENSITY RESIDENTIAL
- (mdr) MEDIUM DENSITY RESIDENTIAL
- (hdr) HIGH DENSITY RESIDENTIAL
- (mfr) MULTI-FAMILY RESIDENTIAL
- (mhp-sup) MOBILE HOME/SPECIAL USE PERMIT
- (pud) PLANNED UNIT DEVELOPMENT
- (ar) AGRICULTURE/ RESIDENTIAL

LEGAL DESCRIPTION

(PER ALTA COMMITMENT FOR TITLE INSURANCE, BY FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NO. VT420455, DATED SEPTEMBER 14, 2023 AT 8:00 A.M.)

LAND SITUATED IN THE TOWNSHIP OF SOUTH HAVEN, COUNTY OF VAN BUREN, STATE OF MICHIGAN, MORE PARTICULARLY DESCRIBED AS:

THE WEST 20.91 ACRES OF THE NORTHWEST 1/4 OF THE NORTHWEST 1/4 OF SECTION 12, TOWN 1 SOUTH, RANGE 17 WEST, SOUTH HAVEN TOWNSHIP, VAN BUREN COUNTY, MICHIGAN, EXCEPT THE WEST 5 ACRES; ALSO EXCEPT COMMENCING AT THE NORTHEAST CORNER OF THE ABOVE DESCRIBED PROPERTY; THENCE WEST ON THE NORTH SECTION LINE 11 RODS; THENCE SOUTH 423 FEET; THENCE EAST 11 RODS; THENCE NORTH 423 FEET TO THE PLACE OF BEGINNING, ALSO, BEGINNING ON THE NORTH LINE OF SAID SECTION 12 165.15 FEET EAST OF THE NORTHWEST SECTION CORNER; THENCE EAST ON THE NORTH SECTION LINE 344.15 FEET; THENCE SOUTH 01'22'55" EAST 423 FEET TO THE TRUE PLACE OF BEGINNING; THENCE EAST 181.5 FEET; THENCE NORTH 01'22'55" WEST 200 FEET; THENCE WEST 181.5 FEET; THENCE SOUTH 01'22'55" EAST TO TRUE PLACE OF BEGINNING.

SUBJECT TO AND INCLUDING A PERMANENT EASEMENT AND RIGHT-OF-WAY BEGINNING 509.27 FEET EAST OF THE NORTHWEST CORNER OF SECTION 12, TOWN 1 SOUTH, RANGE 17 WEST; THENCE SOUTH 423 FEET; THENCE WEST 33 FEET; THENCE NORTH 423 FEET; THENCE EAST 33 FEET TO THE PLACE OF BEGINNING.

AS SURVEYED LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN THE NORTHWEST 1/4 OF SECTION 12, TOWN 1 SOUTH, RANGE 17 WEST, SOUTH HAVEN TOWNSHIP, VAN BUREN COUNTY, MICHIGAN, IS DESCRIBED AS:

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 12, THENCE ALONG THE NORTH LINE OF SAID SECTION AND THE CENTER LINE OF PHOENIX STREET/CR 388 (66' WIDE - PUBLIC), S87°45'50"E, 165.20 FEET TO THE POINT OF BEGINNING OF SAID PARCEL; THENCE CONTINUING ALONG SAID NORTH LINE AND SAID CENTER LINE, S87°45'50"E, 343.93 FEET; THENCE S00°51'15"W, 222.85 FEET; THENCE S87°45'50"E, 181.33 FEET; THENCE S00°51'15"W, 1095.40 FEET TO A POINT ON THE EAST & WEST 1/8 LINE OF SAID SECTION 12; THENCE ALONG SAID EAST & WEST 1/8 LINE, N87°49'19"W, 525.17 FEET; THENCE N00°51'02"E, 1318.79 FEET TO THE POINT OF BEGINNING OF SAID PARCEL.

CONTAINING 651,916 SQ FT OR 14.97 ACRES OF LAND, MORE OR LESS.

COMMONLY KNOWN AS 71751 PHOENIX ST / CR 388, SOUTH HAVEN, MI 49090
TAX PARCEL #80-17-012-047-01

BENCHMARKS:

- (NAVD. 88 DATUM)
- BM #1
BENCH TIE IN UPOLE
ELEV= 653.33
- BM #2
BENCH TIE IN SIGN BASE
ELEV=650.38



THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.



Know what's below.
Call before you dig.

CONSTRUCTION SITE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK OF PERSONS ENGAGED IN THE WORK OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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The UMLOR Group
LAND DEVELOPMENT SERVICES
10987 WEST ROAD WIXOM, MI 48393
TEL: 248-773-7656 - FAX: 866-690-4307

SECTION 12
TOWN 1 SOUTH, RANGE 17 WEST
SOUTH HAVEN TOWNSHIP
VAN BUREN COUNTY, MI

DATE: 1/2/25

REVISIONS

NO.	DATE	DESCRIPTION

TOWNSHIP SUITES
CLIENT: SLY SANDIHA
29870 MIDDLEBELT RD
FARMINGTON HILLS, MI 48334
COVER

DR BY: SF
CK BY: WU
P.M. SA
SCALE: 0 75 150
1" = 150 FEET
JOB NO. 230916
SHEET NO. C1
SHEET C1 OF 5

SYMBOL		DESCRIPTION	
EX. SPOT ELEVATION	EX. STEAM MANHOLE	EX. STEAM PIPE	EX. UNKNOWN UNDERGROUND
EX. CONTOUR	EX. UNDERGROUND FIBER	EX. UNDERGROUND CABLE	EX. OVERHEAD TELEPHONE
EX. DITCH	EX. OVERHEAD CABLE TV	EX. OVERHEAD FIBER	EX. COMMUNICATION RISER
EX. WATER MAIN	EX. COMMUNICATION HANDHOLE	EX. FRESHWATER WELL	EX. UTILITY POLE
EX. WATER METER	EX. GUY ANCHOR	EX. GATE VALVE IN WELL	EX. LIGHT POLE
EX. WATER VALVE	EX. SIGN	EX. HYDRANT	EX. MAILBOX
EX. WATER MANHOLE	EX. FLAGPOLE	EX. ROUND STORM CATCH BASIN	EX. UNKNOWN MANHOLE
EX. FRESHWATER WELL	EX. MONITORING WELL	EX. STORM INLET/CATCH BASIN	EX. PROPERTY LINE
EX. GATE VALVE IN WELL	EX. RIGHT-OF-WAY LINE	EX. STORM SEWER	EX. SECTION LINE
EX. STORM SEWER	EX. PARCELS	EX. ROUND STORM CATCH BASIN	EX. EASEMENT
EX. STORM MANHOLE	EX. CENTERLINE	EX. STORM END SECTION	EX. WETLAND LIMITS
EX. STORM CULVERT	EX. CURB/GUTTER	EX. STORM MANHOLE	EX. FENCE
EX. SANITARY SEWER	EX. GUARDRAIL	EX. COMBINED SEWER	EX. FOUND IRON
EX. SANITARY MANHOLE	FOUND PK NAIL	EX. COMBINED MANHOLE	FOUND CONC. MONUMENT
EX. CLEAN OUT	SET IRON ROD	EX. SANITARY VENT	SECTION CORNER
EX. UNDERGROUND GAS	POST	EX. GAS VALVE	BOLLARD
EX. GAS METER	RECORDED BEARING	EX. GAS MANHOLE	MEASURED BEARING
EX. UNDERGROUND TELEPHONE	EX. TREE (DECIDUOUS/CONIFER)	EX. TELEPHONE MANHOLE	EX. TREELINE
EX. TELEPHONE RISER	EX. ASPHALT	EX. UNDERGROUND ELECTRIC	EX. CONCRETE
EX. ELECTRIC MANHOLE	EX. GRAVEL	EX. ELECTRIC RISER	
EX. ELECTRIC TRANSFORMER		EX. ELECTRIC METER	
EX. AIR CONDITIONER		EX. PUBLIC LIGHTING MH	
EX. PUBLIC LIGHTING MH		EX. PUBLIC LIGHTING ELEC	
EX. OVERHEAD ELECTRIC		EX. WATER MARKER	
EX. WATER MARKER		EX. GAS MARKER	
EX. ELEC. MARKER		EX. TELE. MARKER	
EX. TELE. MARKER		EX. SAN. MARKER	

ZONING

(PER SOUTH HAVEN TOWNSHIP ZONING MAP - LAST AMENDED 10/13/21)

NOTE:
THE NORTH PART OF THE SUBJECT PARCEL IS ZONED "csc" - COMMUNITY SERVICE COMMERCIAL.
THE SOUTH PART OF THE SUBJECT PARCEL IS ZONED "mdr" - MEDIUM DENSITY RESIDENTIAL.

"cdc" ZONING

(PER SOUTH HAVEN TOWNSHIP ZONING ORDINANCE SEC. 11.04)

MINIMUM LOT AREA (NON-AGRICULTURAL):
WITH PUBLIC OR COMMON SANITARY SEWER AND WATER: 10,000 SQUARE FEET EXCLUDING AREAS SUBJECT TO EASEMENTS WITH ON-SITE WATER SUPPLY AND/OR WASTE WATER DISPOSAL AS PERMITTED BY THE COUNTY HEALTH DEPARTMENT; ONE (1) ACRE EXCLUDING AREAS SUBJECT TO EASEMENTS

MINIMUM LOT WIDTH:
FOR LOTS FRONTING ON M-43, M-140, BLUE STAR OR PHOENIX: 330 FEET
FOR LOTS FRONTING ALL OTHER ROADS OR FOR LOTS WITH SHARED DRIVEWAYS: 150 FEET AT THE BUILDING SETBACK LINE
FOR LOTS NOT SERVED BY PUBLIC/COMMON SANITARY SEWER AND/OR WATER
FOR LOTS FRONTING ALL OTHER ROADS OR FOR LOTS WITH SHARED DRIVEWAYS: 80 FEET AT THE BUILDING SETBACK LINE
FOR LOTS SERVED BY PUBLIC/COMMON SANITARY SEWER AND WATER

MINIMUM FRONT YARD:
FROM A STATE HIGHWAY OR C.R. 388: 50 FEET FROM THE RIGHT-OF-WAY LINE
FROM BLUE STAR HIGHWAY: 110 FEET FROM CENTERLINE
FROM ANY OTHER COUNTY ROAD: 35 FEET FROM THE RIGHT-OF-WAY LINE
FROM ANY PRIVATE ROAD: 35 FEET OR AS APPROVED BY THE TOWNSHIP BOARD

MINIMUM SIDE YARDS:
10 FEET ON ONE SIDE, BUT A MINIMUM TOTAL OF 25 FEET FOR BOTH SIDES, EXCEPT WHERE A SIDE YARD ABUTS A ROAD RIGHT-OF-WAY, IN WHICH CASE THE FRONT YARD SETBACK IS REQUIRED.

MINIMUM REAR YARD: 50 FEET FOR PRINCIPLE STRUCTURES, 15 FEET FOR ACCESSORY BUILDINGS. CORNER LOTS DO NOT HAVE A REAR YARD.

MINIMUM WATERFRONT YARD: 50 FEET FROM THE SHORE OF A LAKE OR POND, OR CENTERLINE OF A STREAM, BUT NOT WITHIN A FLOOD HAZARD AREA EXCEPT AS PROVIDED BY LAW.

MAXIMUM HEIGHT LIMIT: ALL STRUCTURES ARE SUBJECT TO ARTICLE XIVA AIRPORT OVERLAY ZONE 35 FEET
50 FEET FOR HOTELS WITH 26-FOOT WIDE SETBACKS ON ALL SIDES WITH PAVING TO SUPPORT 75,000 POUNDS FOR FIRE APPARATUS.
WIND ENERGY GENERATORS: SUBJECT TO ARTICLE XV SPECIAL USES

MAXIMUM LOT COVERAGE: 75 PERCENT

"mdr" ZONING

(PER SOUTH HAVEN TOWNSHIP ZONING ORDINANCE SEC. 6.04)

MINIMUM LOT AREA (SINGLE AND DUPLEX HOUSING)
15,000 SQUARE FEET WITH PUBLIC OR COMMON SEWER AND WATER.
1 ACRE ON LOTS NOT SERVED BY PUBLIC OR COMMON WATER AND SEWER.

MINIMUM LOT WIDTH:
90 FEET ON LOTS WITH WATER AND SEWER.
150 FEET ON LOTS WITHOUT PUBLIC WATER AND SEWER AVAILABILITY.

PARCELS FRONTING ON M-43, M-140, AND CR-388 (PHOENIX ROAD): 330 FEET
MINIMUM WIDTH, EXCEPT WHERE AN EASEMENT FOR INGRESS AND EGRESS IS RECORDED TO/FROM ADJACENT PARCELS, THEN AS ABOVE.

MINIMUM FRONT YARD:
FOR STATE HWY. AND CR 388: 50 FEET MINIMUM FROM RIGHT-OF-WAY LINE.
FOR BLUE STAR HWY OR RUGGLES: 110 FEET FROM THE CENTER LINE
ALL OTHER COUNTY ROADS: 35 FEET FROM THE RIGHT OF WAY LINE
PRIVATE ROADS: 35 FEET FROM RIGHT OF WAY LINE OR AS APPROVED BY TOWNSHIP BOARD

MINIMUM SIDE YARD: 10 FEET MINIMUM FOR EACH SIDE YARD. 15 FEET FOR RESIDENTIAL ACCESSORY BUILDINGS.
PARCELS WITH SIDE-YARDS FRONTING ANY STREET OR ROAD ARE SUBJECT TO THE FRONTYARD SETBACK FOR THAT SIDE

MINIMUM WATERFRONT SETBACK:
50 FEET MINIMUM FROM ESTABLISHED SHORELINES FOR LAKES AND PONDS, AND FROM CENTERLINE OF STREAMS

MINIMUM REAR YARD (CORNER LOTS HAVE NO REAR YARD):
50 FEET MINIMUM FOR PRINCIPLE BUILDING.
15 FEET FOR RESIDENTIAL ACCESSORY BUILDINGS

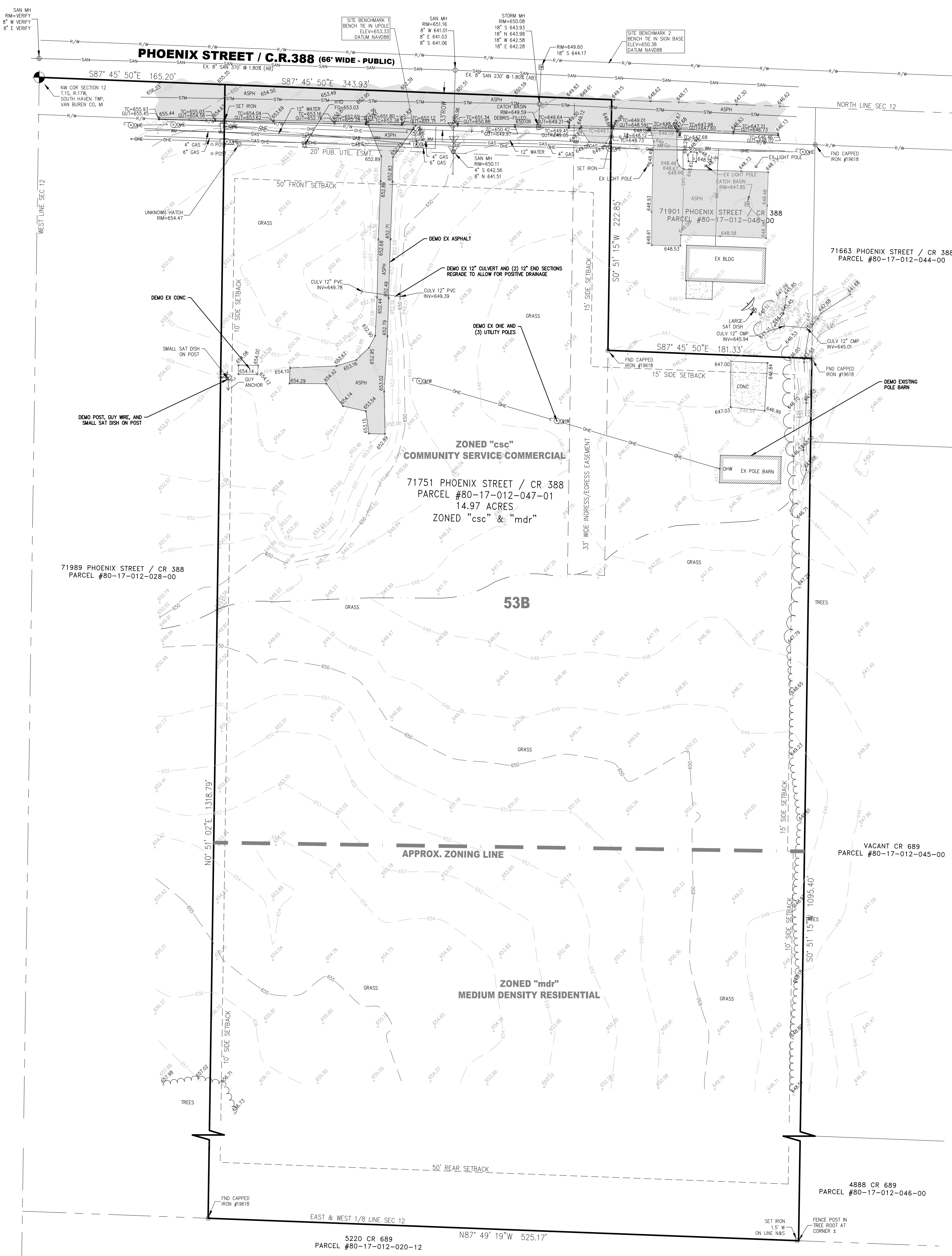
MINIMUM DWELLING FLOOR AREA: MINIMUM FLOOR AREA OF 680 SQUARE FEET FOR EACH DWELLING UNIT.

HEIGHT LIMITATIONS:
35 FEET MAXIMUM FOR ALL RESIDENTIAL STRUCTURES.
25 FEET MAXIMUM FOR ALL RESIDENTIAL RELATED STRUCTURES.

MAXIMUM LOT COVERAGE: 30 PERCENT MAXIMUM

SOILS MAP LEGEND

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
53B	Capac loam, Lake Michigan lobe, D to 4 percent slopes	15.0	100.0%
Totals for Area of Interest		15.0	100.0%



LEGAL DESCRIPTION

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TAX PARCEL #80-17-012-047-01

BENCHMARKS:

(NAVD 88 DATUM)
BM #1
BENCH TIE IN UPOLE
ELEV= 653.33
BM #2
BENCH TIE IN SIGN BASE
ELEV=650.38



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LAND DEVELOPMENT SERVICES
19287 WEST ROAD WIXOM, MI 48393
TEL 248.773.7656 - FAX 866.690.4307

SECTION 12	TOWN 1 SOUTH, RANGE 17 WEST	SOUTH HAVEN TOWNSHIP	VAN BUREN COUNTY, MI
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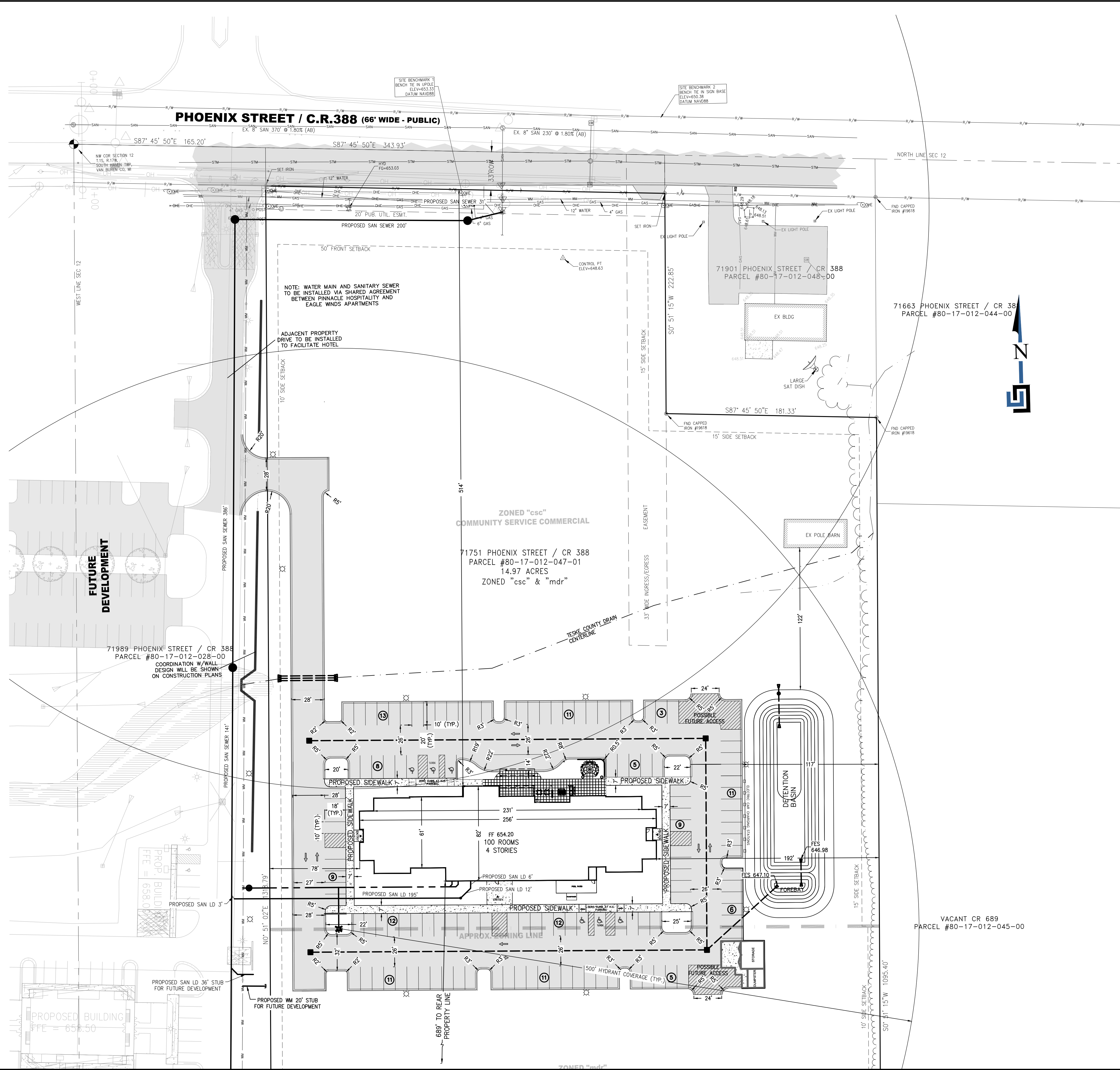
DATE: 1/2/25
REVISIONS

TOWNSHIP SUITES
CLIENT: SLY SANDIHA
29870 MIDDELBERT RD
FARMINGTON HILLS, MI 48334

TOPOGRAPHIC SURVEY & DEMOLITION PLAN

DR BY: SF
CK BY: WU
P.M. SA
SCALE 0 25 50
1" = 50 FEET
JOB NO. 230916
SHEET NO. C2
SHEET 02 OF 5

M:\UMCOR GROUP PROJECT LOGS\53B\PROJECT FILES\323916 - SANDIHA\323916 - SOUTH HAVEN HOTEL DESIGN FILES & PLAN SETS\BASE AUTOCAD FILES\323916-TPDC-BASE.DWG



LEGEND

- PROPOSED LOT BOUNDARY
- BUILDING SETBACK
- PROPOSED MEDIUM DUTY ASPHALT
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED SAFETY PATH ASPHALT
- PROPOSED CONCRETE
- PROPOSED STORM STRUCTURE
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY MANHOLE
- PROPOSED HYDRANT
- PROPOSED GATE VALVE & WELL
- PROPOSED LIGHT POLE
- EXISTING STORM STRUCTURE
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY MANHOLE
- EXISTING OVERHEAD ELECTRIC

ZONING: HC - HIGHWAY COMMERCIAL

TOTAL SITE AREA: 3.25 AC = 141,410 S.F.

SITE IMPROVEMENTS

HOTEL AREA	16,894 S.F.
OPEN SPACE	48,666 S.F.

LOT COVERAGE: HOTEL AREA/SITE (16,894/141,410) 11.9%

OPEN SPACE COVERAGE: OPEN SPACE/SITE (48,666/141,410) 34.4%

SETBACKS:

FRONT SETBACK PHOENIX ST. (C.R. 388)	MIN. REQUIRED 50 FT	PROPOSED 514 FT
REAR YARD SETBACK	50 FT	689 FT
SIDE YARD SETBACK	10 FT (25 FT TOTAL)	78 FT

PARKING:

REQUIRED: (10'x20' SPACES)

OCCUPANCY UNIT	1 SPACE / UNIT
ASSEMBLY ROOM	1 SPACE / OCCUPANCY

PROPOSED:

PORTION OF PROPOSED BUILDING AREA USED FOR PARKING CALCULATION	QUANTITY	SPACES/S.F.	REQ'D
OCCUPANCY UNIT	100	1/UNIT	100
ASSEMBLY ROOM	16	1/OCCUPANCY	16
TOTAL SPACES REQUIRED			116
TOTAL NUMBER OF SPACES PROVIDED			126

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811
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TOWN 1 SOUTH, RANGE 17 WEST
SOUTH HAVEN TOWNSHIP
VAN BUREN COUNTY, MI

DATE: 1/2/25

REVISIONS

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SILY SANDIHA
29870 MIDDLEBELT RD
FARMINGTON HILLS, MI 48334

CLIENT:

DR BY: SF
CK BY: WU
P.M. SA
SCALE: 0 40 80
1" = 40 FEET
JOB NO. 230916
SHEET NO. **C3**
SHEET C3 OF 5

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(NAVD. 88 DATUM)

BM #1
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ELEV= 653.33

BM #2
BENCH TIE IN SIGN BASE
ELEV= 650.38

FUTURE DEVELOPMENT

ZONED "csc"
COMMUNITY SERVICE COMMERCIAL

71751 PHOENIX STREET / CR 388
PARCEL #80-17-012-047-01
14.97 ACRES
ZONED "csc" & "mdr"

VACANT CR 689
PARCEL #80-17-012-045-00

71989 PHOENIX STREET / CR 388
PARCEL #80-17-012-028-00
COORDINATION W/WALL
DESIGN WILL BE SHOWN
ON CONSTRUCTION PLANS

PROP. BUILD
FFE = 658.00

PROPOSED BUILDING
FFE = 658.50

PROPOSED WM 20" STUB
FOR FUTURE DEVELOPMENT

PROPOSED SAN LD 36" STUB
FOR FUTURE DEVELOPMENT

PROPOSED SAN LD 12"

PROPOSED SAN LD 18"

PROPOSED SAN LD 3"

PROPOSED SAN LD 14"

PROPOSED SAN SEWER 38"

PROPOSED SAN SEWER 14"

PROPOSED SAN SEWER 30"

PROPOSED SAN SEWER 30"

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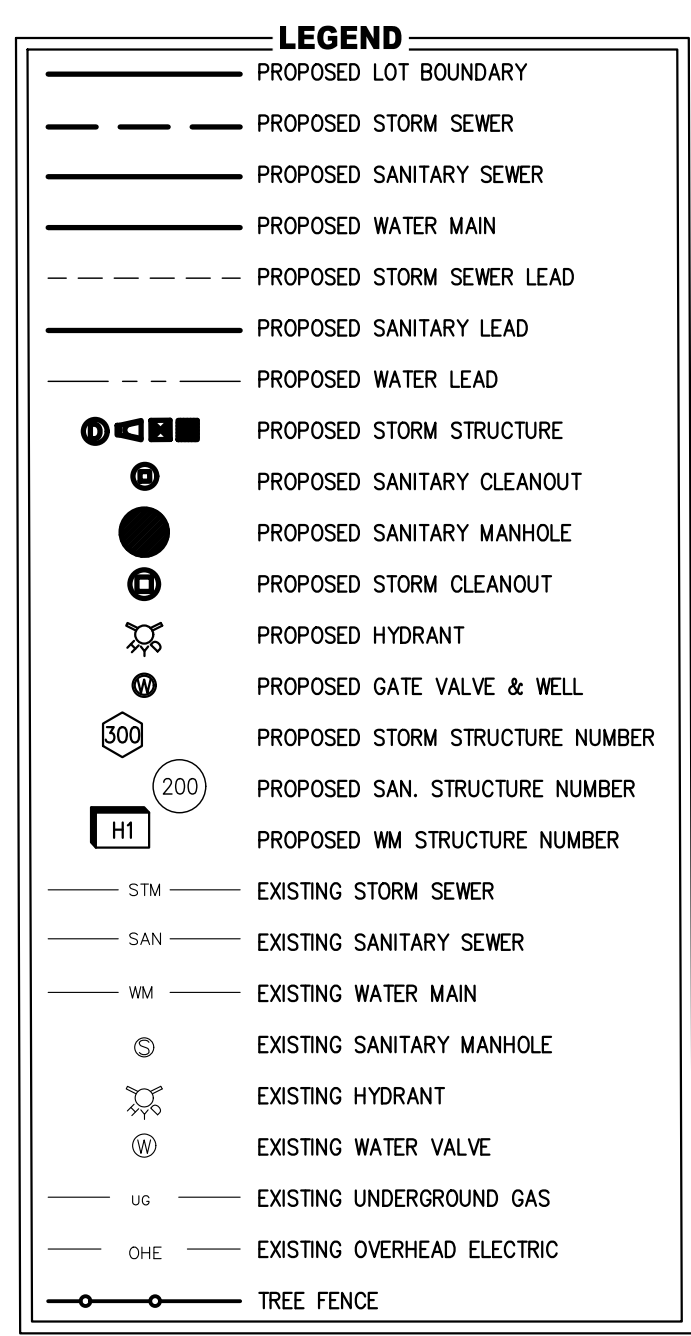
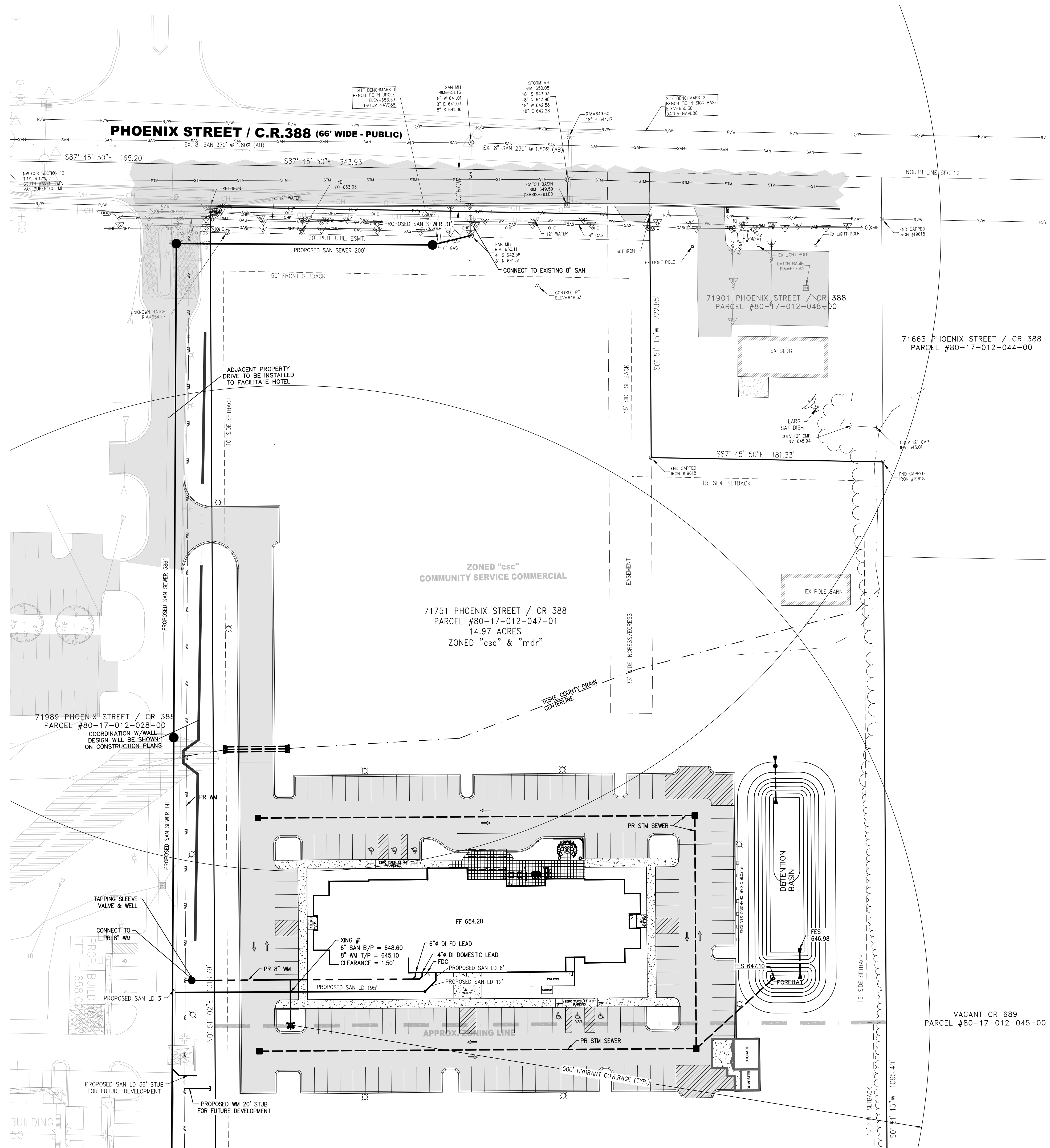
PROPOSED SAN SEWER 30"

PROPOSED SAN SEWER 30"

PROPOSED SAN SEWER 30"

PROPOSED SAN SEWER 30"

PROPOSED SAN SEWER 30"



UTILITY NOTES:

- ALL UTILITIES TO HAVE 20' EASEMENT.
- SANITARY AND WATER BASIN OF DESIGN TO BE DETERMINED BY THE SOUTH HAVEN TWP PUBLIC WORKS DEPARTMENT.

DRAINAGE NARRATIVE:

CONTRIBUTING AREA TO DETENTION BASIN = 3.25 ACRES

THE ON-SITE STORM WATER CONSISTS OF ONE DRAINAGE AREA. THIS AREA IS PROPOSED TO BE COLLECTED IN AN UNDERGROUND STORM SEWER COLLECTION SYSTEM WHICH OUTLETS INTO A DETENTION BASIN. THE ULTIMATE OUTLET OF THE STORM SEWER COLLECTION SYSTEM AND THE DETENTION BASIN IS THE TOSKE COUNTY DRAIN.

THE CALCULATIONS FOR THE DETENTION REQUIREMENTS WERE COMPLETED IN ACCORDANCE WITH THE VAN BUREN COUNTY DRAIN COMMISSION PROCEDURES AND DESIGN STANDARDS FOR STORM WATER MANAGEMENT.

DETENTION BASIN:

Rational Method Detention Basin Sizing Tool Version 1.0

Location: Van Buren County
 Project: Township Suits
 Job No.: 230916
 Date: 1/2/25
 By: Stacy Ford

Contributing Area (ac) = 3.25
 Rational "C" Value = 0.89
 Allowable Release Rate (cfs/ac) = 0.13
 Rainfall Frequency = 25.668
 Site Release Rate (cfs) = 0.4225
 Factor of Safety = 2.25
 Required Storage Volume (cu-ft) = 23,464
 Time to Empty (hr) = 15.4

Time (hr)	Rainfall Intensity (in/hr)	Runoff Volume (cfs)	Discharge Volume (cfs)	Storage Volume (cu-ft)	Storage Volume (ac-ft)	Time to Empty (hr)
0.10	2.560	737	254	484	0.27	6.0
0.20	4.800	970	380	1175	0.27	7.7
0.333	4.100	1128	507	1877	0.31	8.9
0.500	3.500	1241	791	2639	0.36	10.4
0.667	2.749	1491	1014	3780	0.40	11.4
0.750	2.543	1557	1141	4780	0.41	11.8
0.833	2.289	1671	1288	5654	0.42	12.2
1.000	2.090	1713	1521	6395	0.44	12.7
2.000	1.590	2100	2042	22450	0.52	14.8
3.000	0.950	23200	4963	23296	0.53	15.3
4.000	0.753	24955	8064	23454	0.54	15.4
5.000	0.642	26139	7820	23165	0.53	15.2
6.000	0.557	27189	8128	22978	0.52	14.8
7.000	0.484	28149	10647	21878	0.50	14.4
8.000	0.445	28979	12188	21014	0.48	13.9
9.000	0.408	29712	13869	20029	0.46	13.2
10.000	0.373	30388	15210	19445	0.43	12.5
12.000	0.323	31203	16203	18566	0.39	11.9
18.000	0.232	34026	23779	8910	0.19	5.5
24.000	0.185	36224	36504	0	0.00	0.0

Notes:

- Runoff volume is calculated by multiplying the Rational formula discharge, CA, by the time, $V_r = CA \cdot t$.
- Discharge volume is calculated by multiplying the site release rate, Q_r , by the time, $V_d = Q_r \cdot t$.
- Storage volume is calculated by subtracting the discharge volume from the runoff volume and multiplying by the factor of safety, $V_s = (V_r - V_d) \cdot F_s$.
- The time to empty is the storage volume divided by the site release rate.

Disclaimer: This Excel spreadsheet is furnished by the Van Buren County Drain Commission and FICRA for the convenience of the recipient to show compliance with the Van Buren County Site Development Rules. Any additional conclusions or information obtained or derived from this spreadsheet program will be at the user's sole risk.

Van Buren County Drain Commissioner
 219 Paw Paw St., Suite 201
 Paw Paw, MI 49773

fish
 1015 Algonquin Dr SE
 Grand Rapids, MI 49508

Detention Basin Calculations

DETERMINE DETENTION VOLUME REQUIREMENTS (10-YEAR STORM)

CA = 3.25 Ac
 C = 0.89
 Rational Method Sizing Tool Provided by Van Buren County

Contributing Area = 3.25 ac
 Time to Empty = 15.40 hr
 Allowable Release Rate = 0.13 cfs/ac
 Factor of Safety = 2.25
 V = Total volume of storage required = 23,464 cu-ft

SEDIMENT FOREBAY VOLUME (20% of first flush volume)

First Flush = 750 cu-ft
 Permeous = 0.5 cu-ft
 Impermeous = 2.13 cu-ft
 Volume = 0.300 Permeous ac x 750 cu-ft/ac + Impermeous ac x 0.5 cu-ft/ac + 49500(75) = 1,411 cu-ft

SEDIMENTATION FOREBAY VOLUME PROVIDED FOR 0.5" RUNOFF

Elevation	Area (SQ FT)	Height (ft)	Inc. Vol. (CU FT)	Vol (cu-ft)
Low Water	647	1.00	647	647
647	139	1	139	786
648	415	1	415	1201
649	597	1	597	1798
650	822	1	822	2620

STORAGE = 0.00 R
 VOLUME REQUIRED = 1,411 R3 req'd
 VOLUME PROVIDED = 2,620 R3 req'd
 FOREBAY VOLUME = 101.02%

DETENTION BASIN VOLUME PROVIDED FOR 10-YEAR STORMS

Elevation	Area	Height	Inc. Vol. (CU FT)	Vol (cu-ft)
Low Water	647	1.00	647	647
648	139	1	139	786
649	415	1	415	1201
650	597	1	597	1798
651	822	1	822	2620
652	10,541	1	10,541	34,900

STORAGE = 0.00 R
 VOLUME REQUIRED = 1,411 R3 req'd
 VOLUME PROVIDED = 34,900 R3
 FOREBAY VOLUME = 10,326 R3

BENCHMARKS:

(NAVD. 88 DATUM)

BM #1
 BENCH TIE IN UPOLE
 ELEV= 653.33

BM #2
 BENCH TIE IN SIGN BASE
 ELEV=650.38

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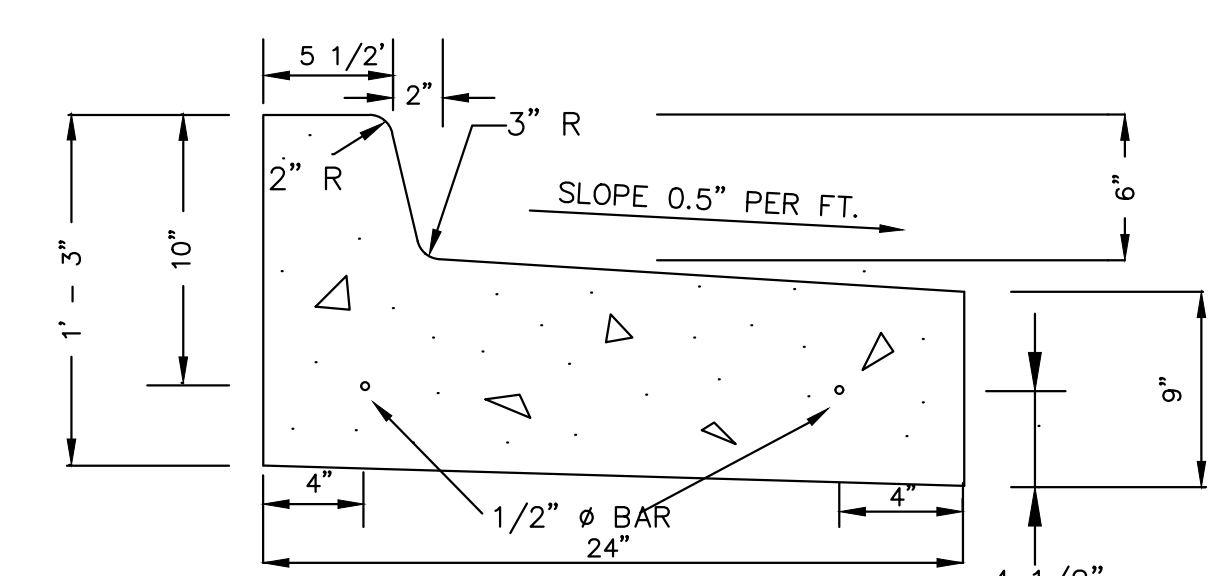
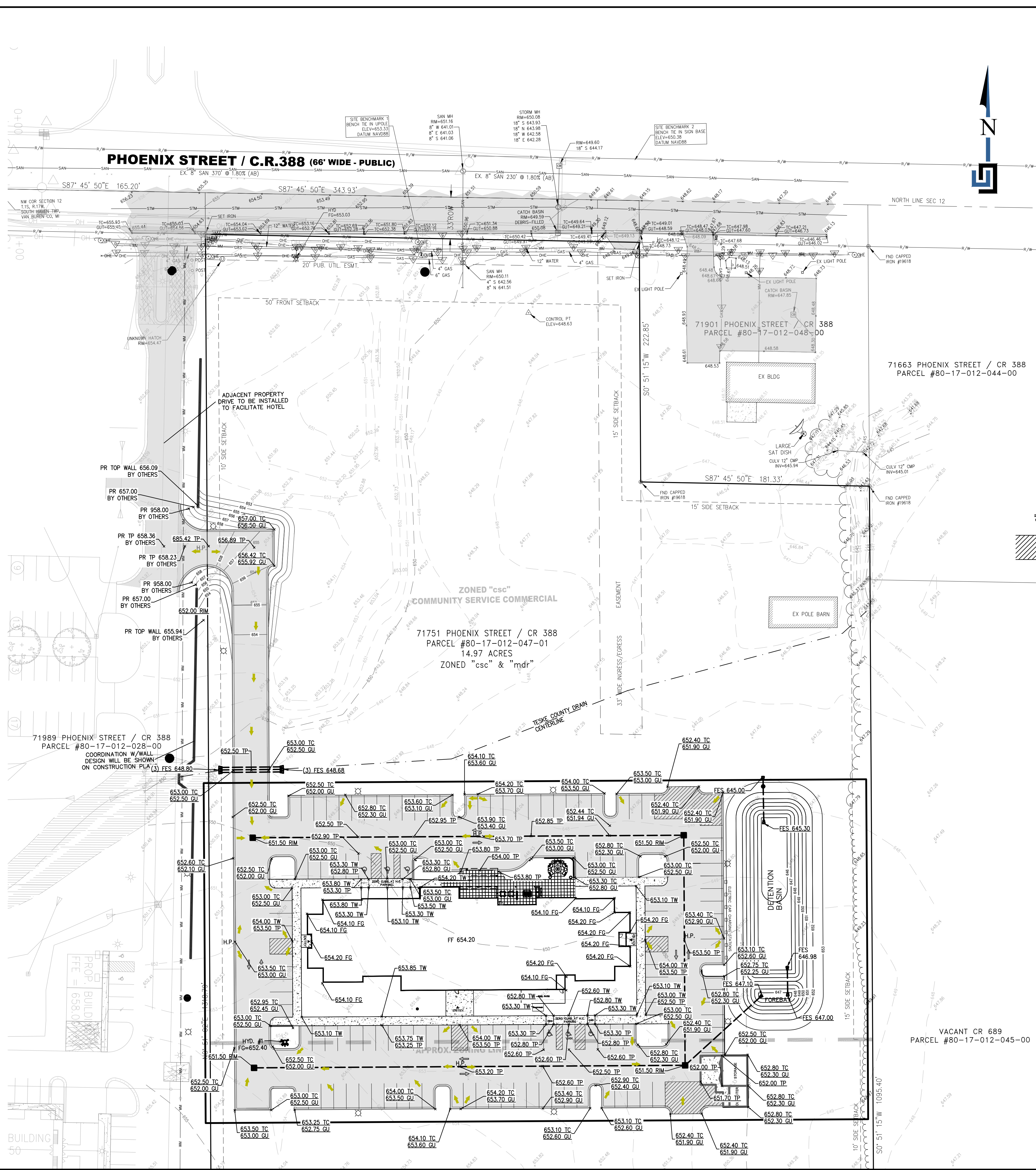
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 SOUTH HAVEN TOWNSHIP
 VAN BUREN COUNTY, MI

DATE: 1/2/25
 REVISIONS

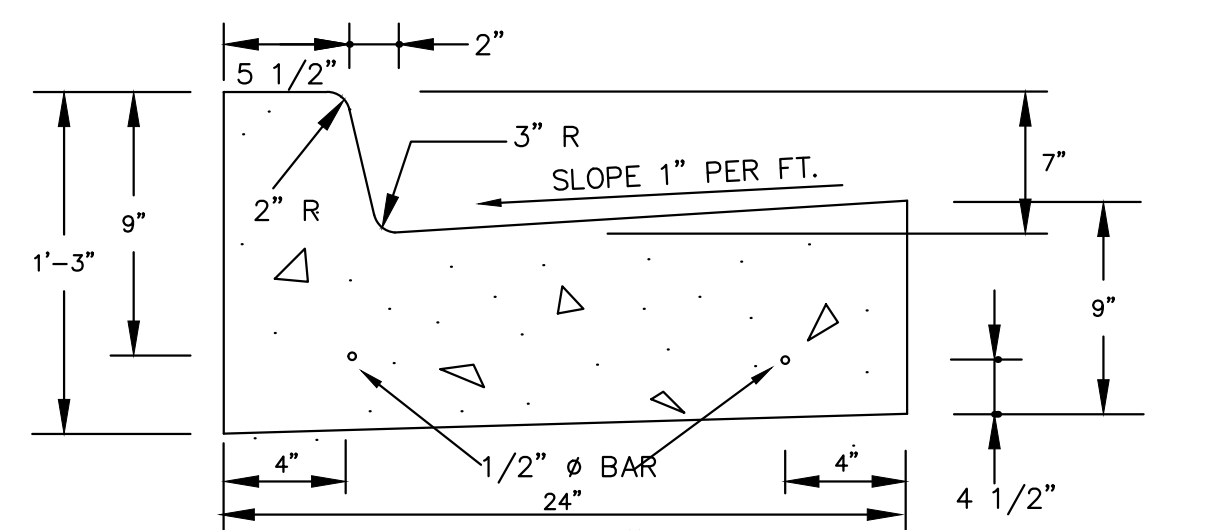
TOWNSHIP SUITES
 SLY SANDIHA
 29870 MIDDLEBELT RD
 FARMINGTON HILLS, MI 48334

UTILITY PLAN

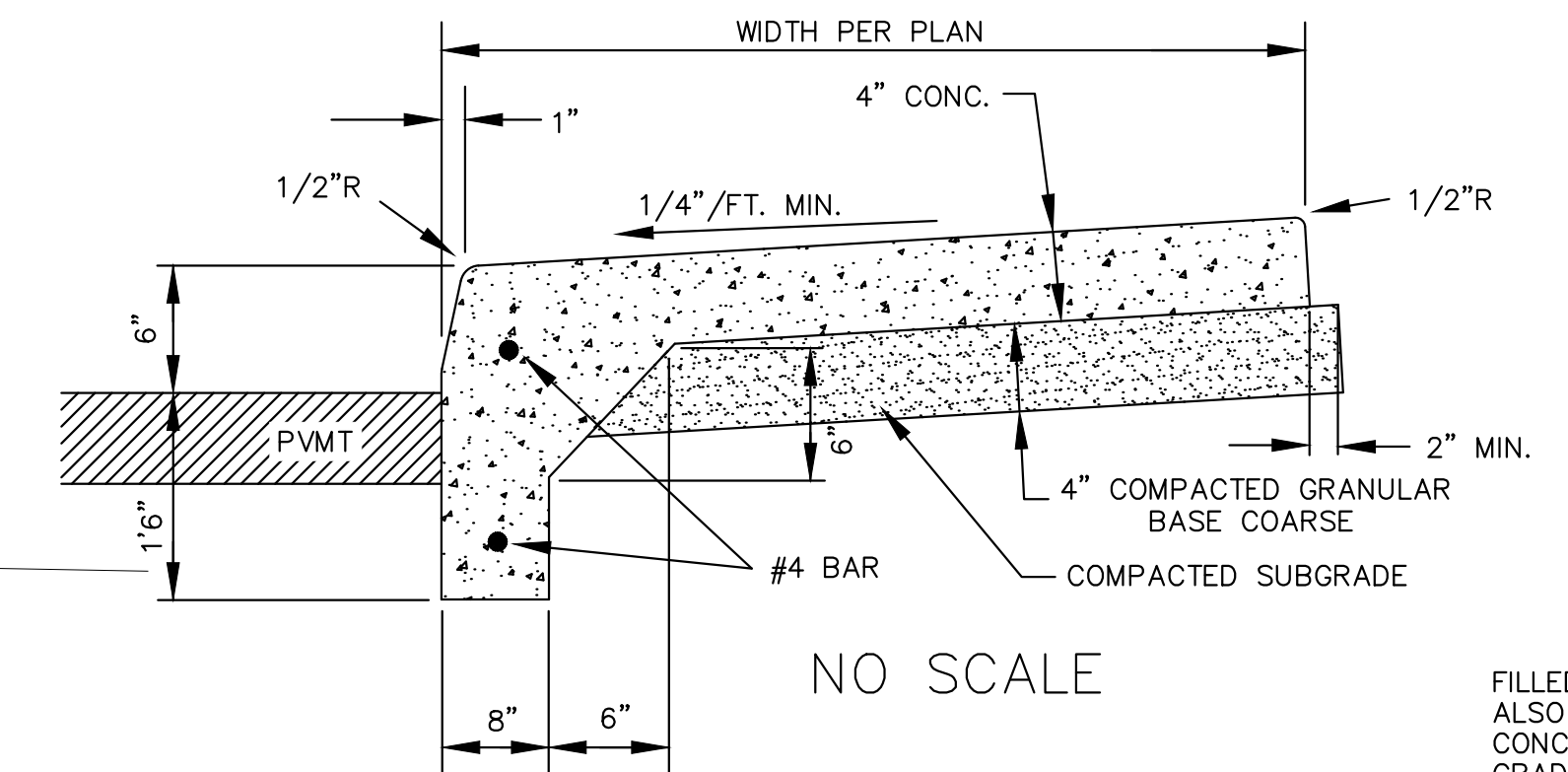
CLIENT:
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 CK BY: WJ
 P.M. SA
 SCALE: 0 20 40
 1" = 40 FEET
 JOB NO. 230916
 SHEET NO. C4
 SHEET C4 OF 5



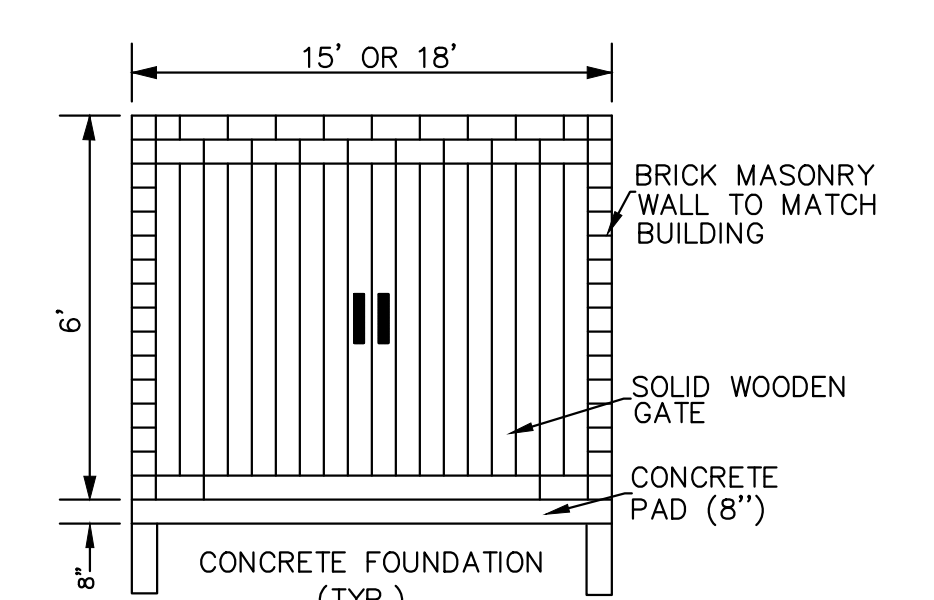
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NO SCALE



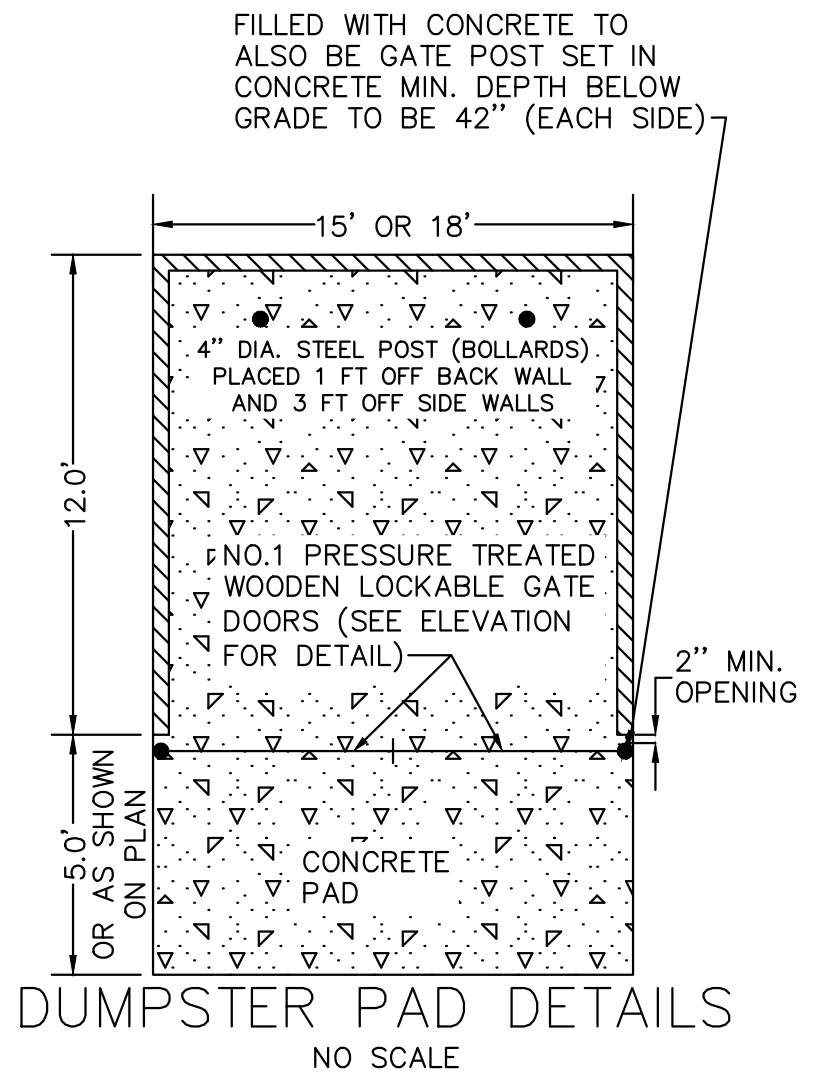
STANDARD 6" CONC. CURB & GUTTER DETAIL
NO SCALE



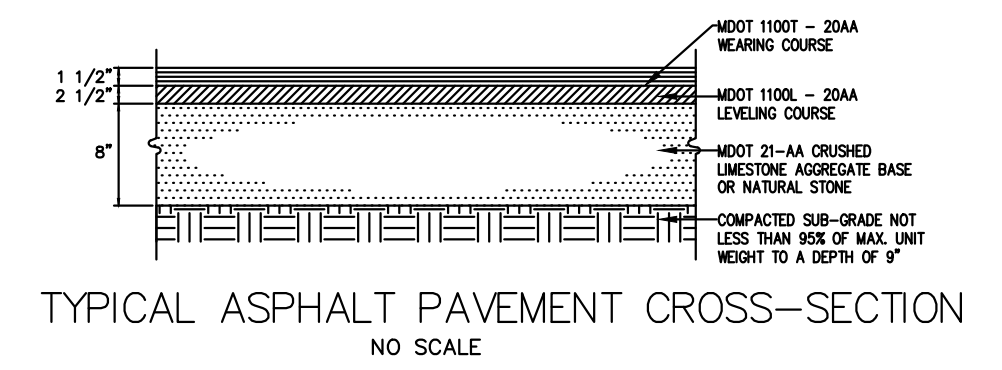
FRONT ELEVATION DUMPSTER GATE
NO SCALE



CONCRETE SIDEWALK DETAIL
NO SCALE



DUMPSTER PAD DETAILS
NO SCALE



TYPICAL ASPHALT PAVEMENT CROSS-SECTION
NO SCALE

- LEGEND**
- PROPOSED LOT BOUNDARY
 - PROPOSED ASPHALT
 - PROPOSED CONCRETE
 - PROPOSED STORM STRUCTURE
 - PROPOSED STORM SEWER
 - PROPOSED HYDRANT
 - PROPOSED WATER VALVE
 - PROPOSED SANITARY CLEANOUT
 - PROPOSED SANITARY MANHOLE
 - EXISTING STORM STRUCTURE
 - EXISTING STORM SEWER
 - EXISTING HYDRANT
 - EXISTING WATER VALVE
 - EXISTING SANITARY MANHOLE
 - EXISTING ASPHALT
 - PROPOSED CONTOURS
 - EXISTING CONTOURS
 - TREE FENCE

- LABEL LEGEND**
- TC TOP OF CURB
 - GU GUTTER
 - TP TOP OF PAVEMENT
 - FG FINISHED GRADE
 - FES FLARED END SECTION
 - EX EXISTING
 - PR PROPOSED
 - H.P. HIGH POINT

BENCHMARKS:
(NAVD. 88 DATUM)
BM #1
BENCH TIE IN UPOLE
ELEV= 653.33
BM #2
BENCH TIE IN SIGN BASE
ELEV= 650.38

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SOUTH HAVEN TOWNSHIP
VAN BUREN COUNTY, MI

DATE: 1/2/25
REVISIONS

TOWNPLACE SUITES
CLIENT: SLY SANDIHA
29870 MIDDLEBELT RD
FARMINGTON HILLS, MI 48334

GRADING PLAN
DR BY: SF
CK BY: WJ
P.M. SA
SCALE: 0 20 40
1" = 40 FEET
JOB NO: 230916
SHEET NO. C5
SHEET C5 OF 5



- ERF-001 BENJAMIN MOORE "STONE BROWN" NO. 2112-30
- EEF-001 BENJAMIN MOORE "MANOR BLUE" NO. 1627
SCONCE SEE ELECTRICAL FOR MORE INFORMATION TYPICAL
- EEF-002 BENJAMIN MOORE "NOVEMBER RAIN" NO. 1242-60
- EEF-003 NICHA "WHITE DIAMOND" NO. 2742
- EEF-005 BENJAMIN MOORE "STONE BROWN" NO. 2112-30
- EWP-001 NIGHT SHADE ED680-CU5 SMOOTH
- EWP-002 NICHA SMOKE ED274N

- ERF-002 COLOR TO MATCH ADJACENT WALL
- ERF-003 MATCH NICHA WHITE DIAMOND
- ERF-004 WHITE ON BLACK
- ERF-005 BLACK



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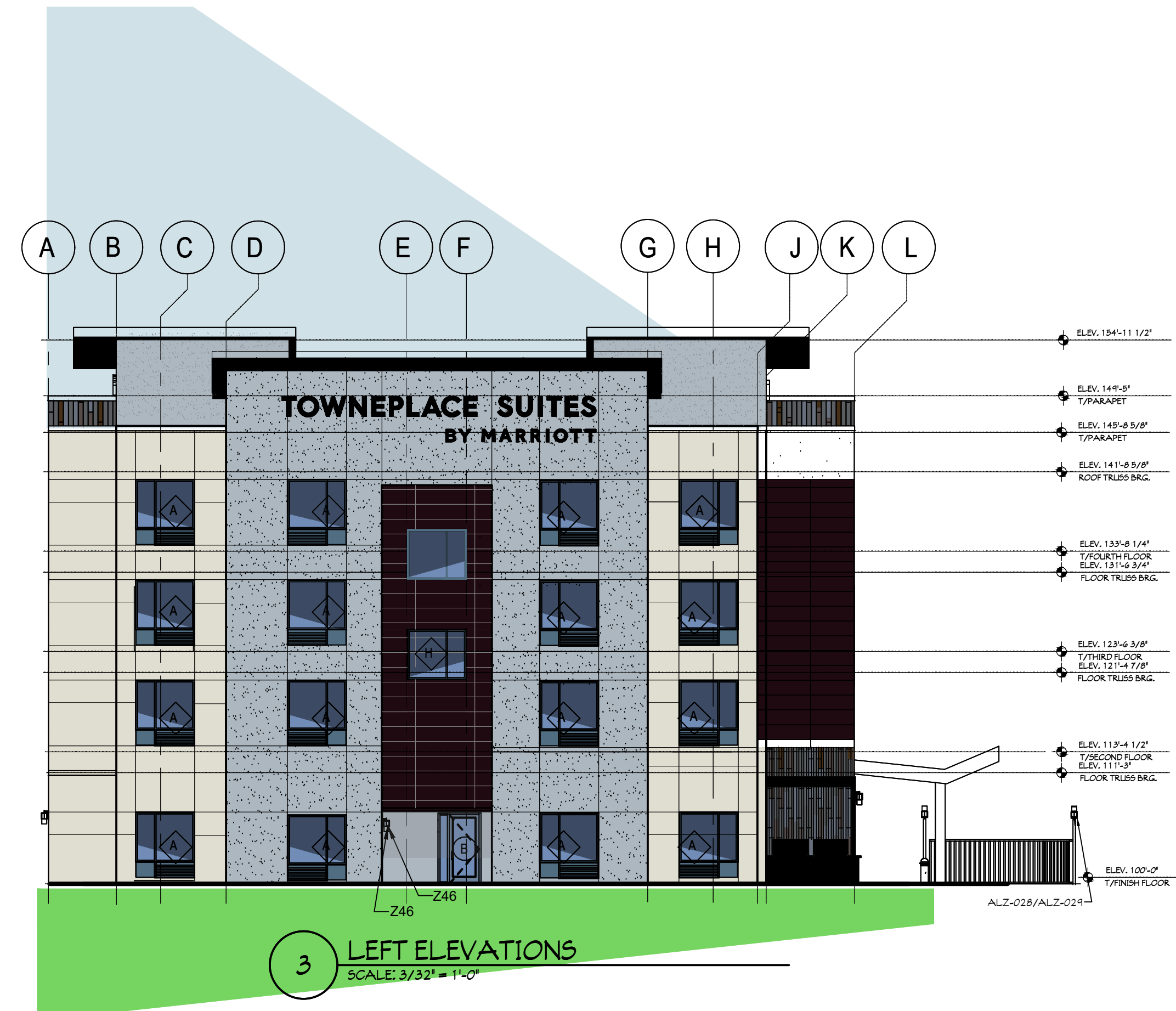
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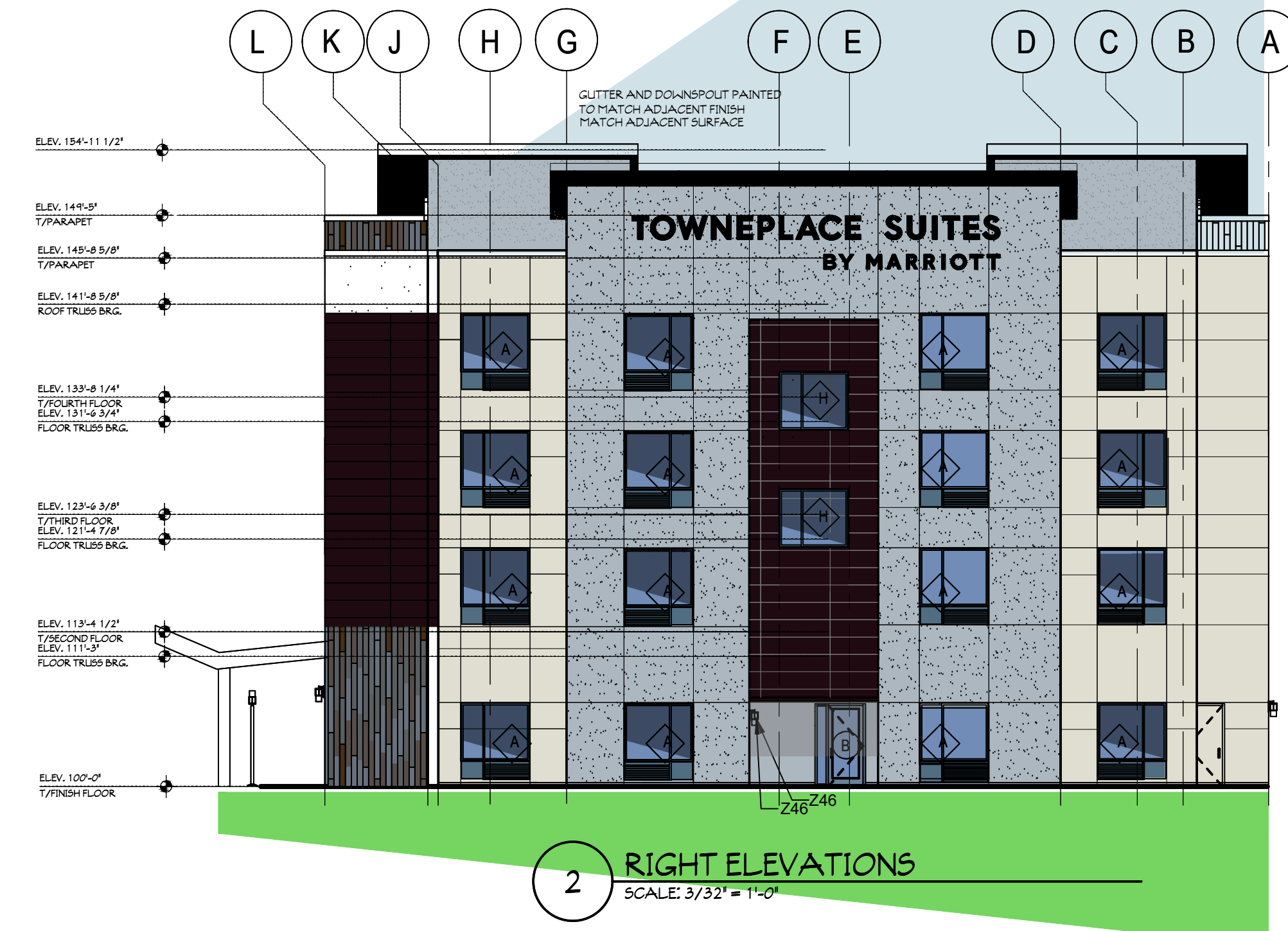
TOWNEPLACE SUITES
BY MARRIOTT

FLINT, MICHIGAN

DATE: 12/31/23
 JOB NO.: MAS-23-145
 NAME: BUILDING ELEVATIONS SCHEME GREY (RENDERED)
 SHEET: **A201**



3 LEFT ELEVATIONS
SCALE: 3/32" = 1'-0"



2 RIGHT ELEVATIONS
SCALE: 3/32" = 1'-0"

- ERF-001 BENJAMIN MOORE "STONE BROWN" NO. 2112-30
- EEF-001 BENJAMIN MOORE "MANOR BLUE" NO. 1627
- EEF-002 BENJAMIN MOORE "NOVEMBER RAIN" NO. 1242-60
- EEF-003 NICHIA "WHITE DIAMOND" NO. 2742
- EEF-005 BENJAMIN MOORE "STONE BROWN" NO. 2112-30
- EWP-001 NIGHT SHADE ED680-CUS SMOOTH
- EWP-002 NICHIA SMOKE ED274N
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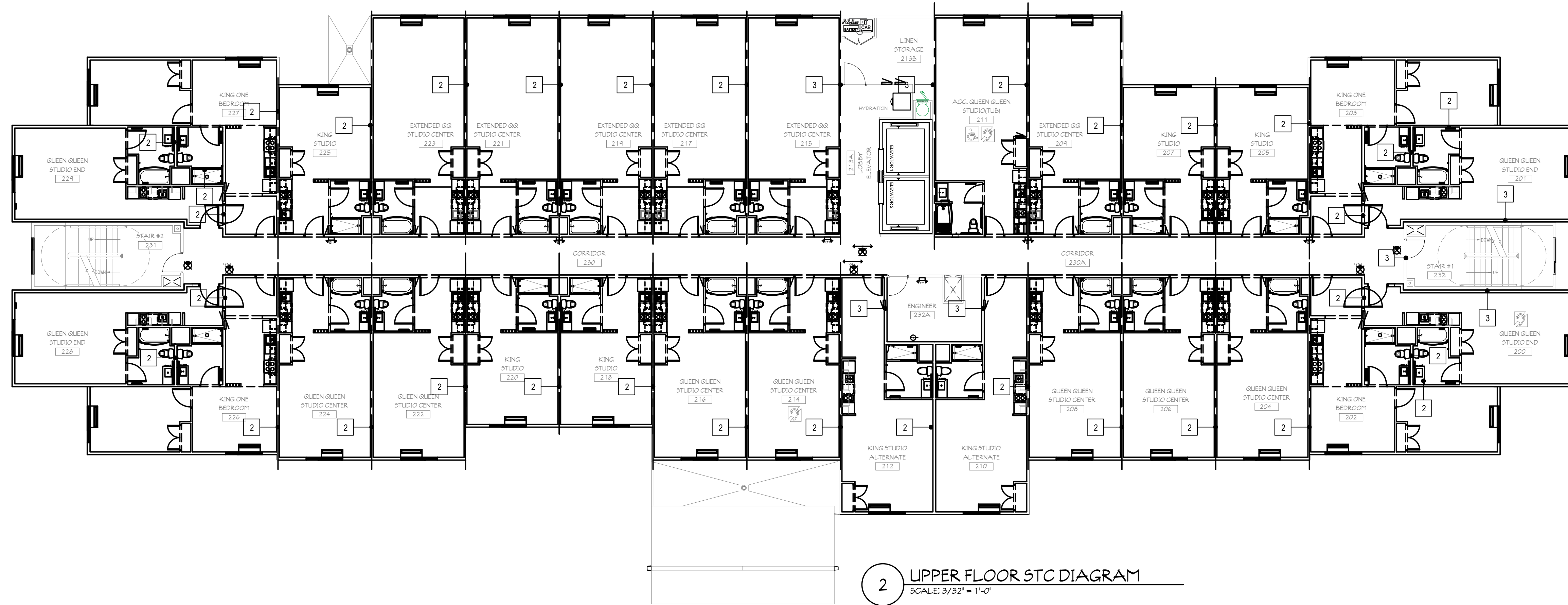
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FLINT, MICHIGAN

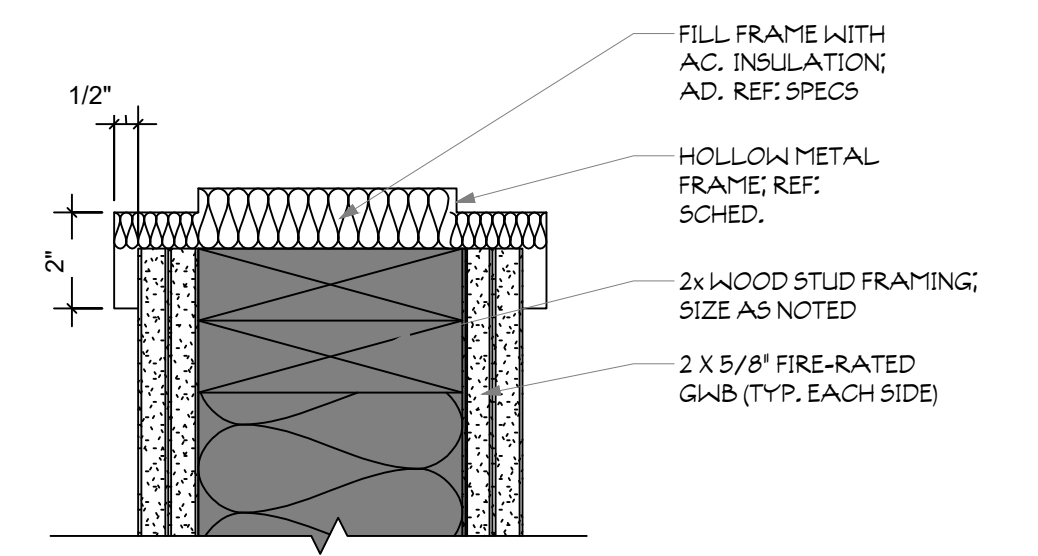
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JOB NO.: MAS-23-145
NAME: BUILDING ELEVATIONS SCHEME GREY (RENDERED)
SHEET: **A202**

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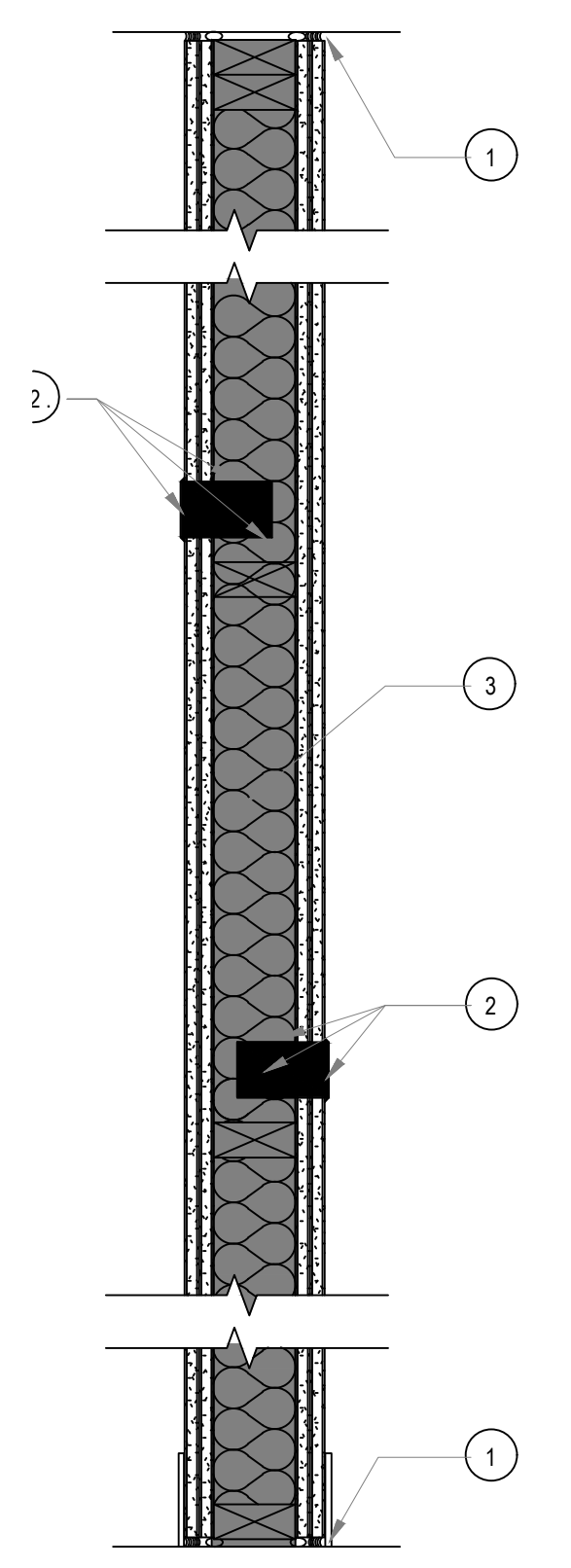
SHEET SIZE 24x36



2 UPPER FLOOR STC DIAGRAM
SCALE: 3/32" = 1'-0"



4 GUEST ROOM ENTRY & CONNECTOR DOOR
SCALE: 3" = 1'-0"



3 ACOUSTIC WALL PLAN / SECT.
SCALE: 1/2" = 1'-0"



1 FIRST FLOOR/LOBBY LEVEL STC DIAGRAM
SCALE: 3/32" = 1'-0"

ACOUSTIC REQUIREMENTS - CONSTRUCTION CRITERIA			
TYPE	PARTITION LOCATION	STC	IIC
1	FLOOR / CEILING ASSEMBLY	55	57
2	GUESTROOM PARTY WALL (INCLUDING SHAFT / CHASE WALL BETWEEN GUEST BATHS)	55	
3	GUESTROOM ADJACENT TO PUBLIC AND MEETING SPACES, SERVICE AREAS, ELEVATORS, EQUIPMENT ROOMS, LAUNDRY AND SIMILAR SPACES	55+	
4	CORRIDOR WALLS	50	

Table from TownPlace Suites by Marriott Design Standards; Chapter 7 Guest Accommodations; Figure 7-2: STC / IIC Acoustics - Table; Revised June 2015

DETAIL FROM MARRIOTT DESIGN STANDARDS, FIGURE 2 DATED 1/2013 REVISED 4/2015

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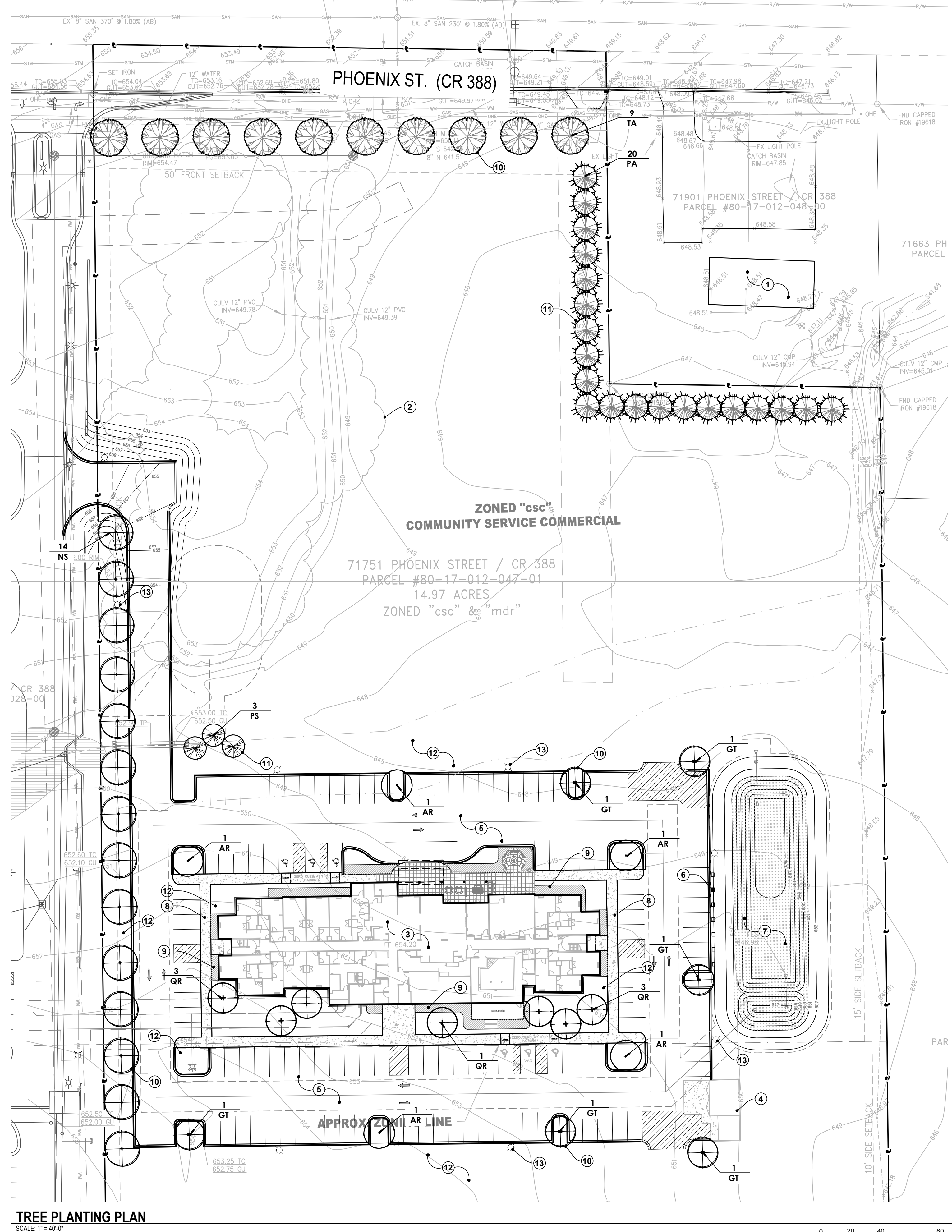
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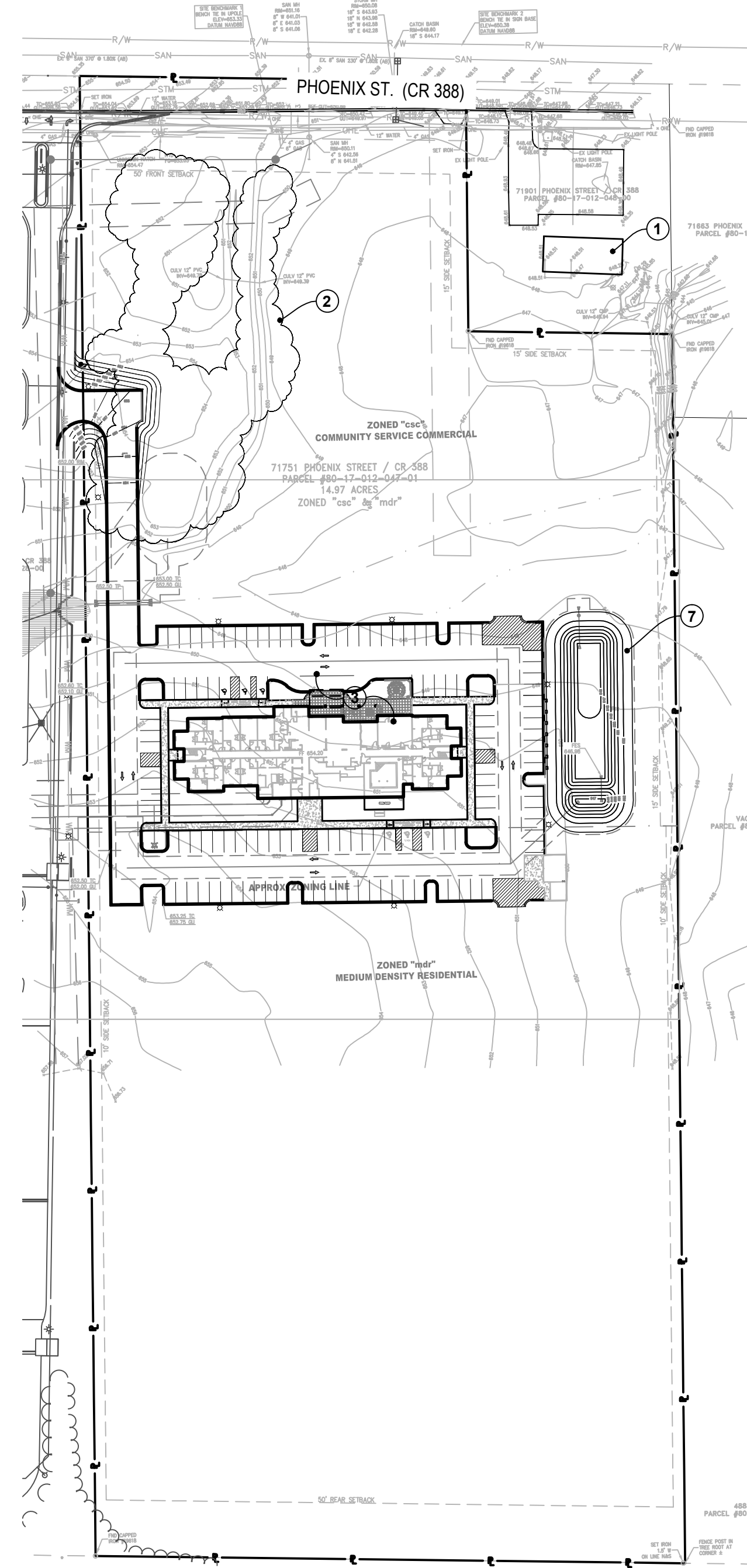
DATE: 12/31/23
JOB NO.: MAS-23-145
NAME: STC DIAGRAMS
SHEET: **A180**

LANDSCAPE NOTES

- Landscape Contractor shall visit the site, inspect existing conditions and review proposed planting and related work. In case of discrepancy between the plan and the plant list, the plan shall govern quantities. Contact the Landscape Architect with any concerns.
- The Contractor shall verify locations of all on-site utilities prior to beginning construction on his/her phase of work. Any damage or interruption of service shall be the responsibility of the contractor.
- The contractor shall coordinate all related activities with other trades, and shall report any unacceptable site conditions to the Landscape Architect or Owner's Representative prior to commencement of operations.
- Plants shall be full, well branched, and in a healthy vigorous growing condition. All minimum planting sizes specified on the Project Plans shall be at the time of planting. All plant material shall be free of disease and insects and shall conform to the most current edition of the American Standard of Nursery Stock of the American Association of Nurserymen.
- All landscape materials shall be as specified on the Project Plans or approved equal. Substitutions shall not be made without prior approval from the Project Landscape Architect and receipt of the Owner's Authorization.
- All landscape plantings shall be planted and maintained in a healthy condition and shall be guaranteed by the Landscape Contractor for a minimum period of 1 year from the time of planting. Any plantings that show a 25% dieback or greater, or become diseased during the guarantee period shall be removed and replaced by the Landscape Contractor at no additional cost to the Owner. The new plant material shall also be guaranteed for a period of one year.
- All plant material shall be watered before and after planting operations are complete. Slow release fertilizer shall be added to the plant pits prior to being backfilled and shall be applied at the manufacturers recommended rates.
- Excavations for container or balled plantings shall be no deeper than the root ball or container and shall be at least twice the diameter of the root ball or container. See planting details for notes on planting depth in relation to final grade.
- Excavations for bare root plantings shall be no deeper than the longest roots and shall be at least twice the diameter of the root spread. See planting details for notes on planting depth in relation to final grade.
- The sides of planting excavations in heavy and/or wet soils shall be scarified with a rake, pick or shovel to eliminate glazing.
- The Contractor shall provide clean backfill using a mixture of native on-site soil and an amended plant mix. The native on-site soil shall be screened and free of debris, foreign material and stones larger than 2" in diameter. The amended plant mix shall consist of 1/3 screened topsoil, 1/3 sand, and 1/3 compost, mixed well and spread to a depth as indicated on the planting details.
- The Landscape Contractor shall stake and reinforce all trees to prevent wind damage. The Contractor shall be responsible for maintaining all plant material in an upright vertical position throughout the guarantee period.
- The Landscape Contractor shall remove all tree reinforcement and stakes after one (1) growing season.
- Landscape beds shall be separated from lawn areas as indicated on the Project Plans.
- All plantings shall be mulched with natural double shredded hardwood bark. Mulch shall be spread uniformly throughout the landscape bed to a depth of 3" within tree and shrub beds and 2" deep within perennial beds. Mulch shall be free from debris, foreign material, and pieces of inconsistent size.
- Lawn areas shall be established over a minimum 3" depth screened topsoil and either hydro-seed or sod as indicated on the Project Plans. The Landscape Contractor shall guarantee all lawn areas for a minimum period of 1 year from time of seeding. All lawn areas that do not take root, die, or become diseased during the guarantee period shall be re-seeded or sodded as appropriate by the Landscape Contractor at no cost to the Owner.
- Topsoil shall be a dark, organic, natural surface soil free of clay lumps, peat, muck, subsoil, noxious weeds and other foreign material such as roots, sticks and rocks over 1" diameter. Topsoil shall not be frozen or muddy. All earthen areas to receive topsoil shall be finish graded and properly trimmed. Topsoil shall be spread on the prepared areas to a depth of 3". After spreading, any large clods and lumps of topsoil shall be broken up and pulverized. Stones and rocks over 1" in diameter, roots, and all foreign debris shall be raked up and disposed of by the Landscape Contractor. Seed and mulch shall be placed within 3 days of topsoil placement.
- Seed mixture for lawn areas shall be as indicated on the plans or if no mixture is given, shall consist of 10% Kentucky Blue Grass, 20% Perennial Rye Grass, 30% Hard Fescue and 40% Creeping Red Fescue. Hydro-seed shall be placed within 3 days of topsoil placement and shall be placed to provide complete and uniform coverage. Fertilizer (10-10-10) shall be placed at 80 pounds per acre, hydro mulch at 1,200 pounds per acre and water at 500 gallons per acre unless otherwise specified by the Seed Distributor/Manufacturer. All over spray areas shall be properly cleaned and restored at no expense to the contract.
- Storm water seed mixture shall be as indicated on the plans or if no mixture is given, shall be Stormwater Seed Mix by Cardno Native Plant Nursery or approved equal. Seed mixture shall be applied at 32.97 pounds per acre unless otherwise specified by the Manufacturer. Fertilizer and mulch shall be placed in accordance with the Manufacturer's specifications.
- Seed and straw mulch may be substituted for hydro-seed when authorized by the Owner. Seed mixtures shall meet the requirements for lawn areas as outlined above. Seed shall be uniformly applied at a rate of 220 lbs per acre unless otherwise recommended by the seed Distributor/Manufacturer. Seed mixture shall be fertilized. Fertilizer shall be uniformly applied at 240 pounds per acre of chemical fertilizer nutrients in equal portions (10-10-10) of Nitrogen, Phosphoric Acid and Potash.
- All seeded areas with a slope greater than 1:4 shall be stabilized with erosion control blankets. Erosion control blankets shall consist of 100% straw fiber matrix with photo-degradable polypropylene netting and have a 12-month minimum longevity rating. Erosion control blankets shall be pinned with biodegradable pins and shall be installed in accordance with the Manufacturer's recommendations.
- The Landscape Contractor shall be responsible for watering non-irrigated plantings and sod / seed areas during dry weather conditions throughout the guarantee period as necessary to promote growth and establishment.
- Should an irrigation system be installed as a part of this project, all lawn and landscape areas, including landscape islands, within the limits of irrigation as depicted on the Landscape Plan, shall be irrigated. The Contractor shall submit an irrigation system design and shop drawings to the Landscape Architect and Owner's Representative for review and approval prior to installation. Irrigation systems shall be designed to utilize the minimum amount of water necessary to provide sufficient irrigation, satisfy the Local Municipal requirements and site conditions and shall include a rain sensor. A separate water meter shall be installed as a part of the irrigation system to allow for reduced rate metering by the Local Municipality and/or Water Authority. The Contractor shall be responsible for coordinating installation of irrigation lines, sleeves, plumbing connections, controls and appurtenances at the appropriate stages of construction. All existing irrigation lines and systems that are to remain that are cut, plugged, spliced, damaged and/or otherwise modified during demolition and/or construction activities shall be properly repaired, replaced, reconnected and/or adjusted as necessary to ensure proper operation.



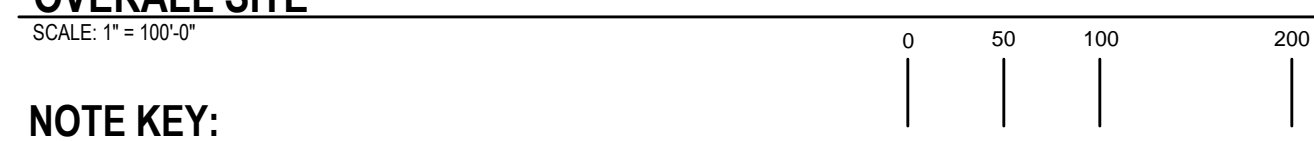
TREE PLANTING PLAN
SCALE: 1" = 40'-0"



OVERALL SITE
SCALE: 1" = 100'-0"

NOTE KEY:

- EXISTING RESIDENCE - OFF SITE
- APPROXIMATE LIMITS OF EXISTING TREES
- PROPOSED HOTEL, SEE ARCHITECTURE
- DUMPSTER ENCLOSURE AND STORAGE BUILDING
- ASPHALT PARKING LOT, SEE CIVIL ENGINEERING DRAWINGS
- ELECTRIC CAR CHARGING STATIONS
- STORM WATER BASIN, SEE CIVIL ENGINEERING DRAWINGS AND SHEET L-3 FOR SEEDING REQUIREMENTS
- CONCRETE SIDEWALK, TYPICAL
- LANDSCAPE BEDS, SEE ENLARGEMENT SHEET L-2
- DECIDUOUS TREE PLANTING, SEE SHEET L-2 FOR PLANT SCHEDULE AND TYPICAL DETAIL SHEET L-3
- EVERGREEN TREE PLANTING, SEE SHEET L-2 FOR PLANT SCHEDULE AND TYPICAL DETAIL SHEET L-3
- LAWN OVER MINIMUM 3" DEPTH TOPSOIL TO LIMITS OF DISTURBANCE
- PROPOSED SITE LIGHTING, SEE PHOTOMETRIC PLAN



NOT FOR CONSTRUCTION

NORTH



Issued For:
 03.20.2024 Preliminary Site Plan Review
 07.24.2024 Site Plan Review
 01.08.2025 Revision

Project:
TOWNSHIP SUITES HOTEL
 71751 Phoenix St. (CR 388)
 Southhaven, Michigan

Project Sponsor:
 Mr. Sam Sandiha
 29870 Middlebet Road
 Farmington Hills, MI 48334

Sheet Name:
Tree Planting Plan



Drawn: JG
 Checked: JG
 Date: 02.2024
 Scale: AS NOTED

Project Number:
24.019
 Sheet Number:
L-1

Project:

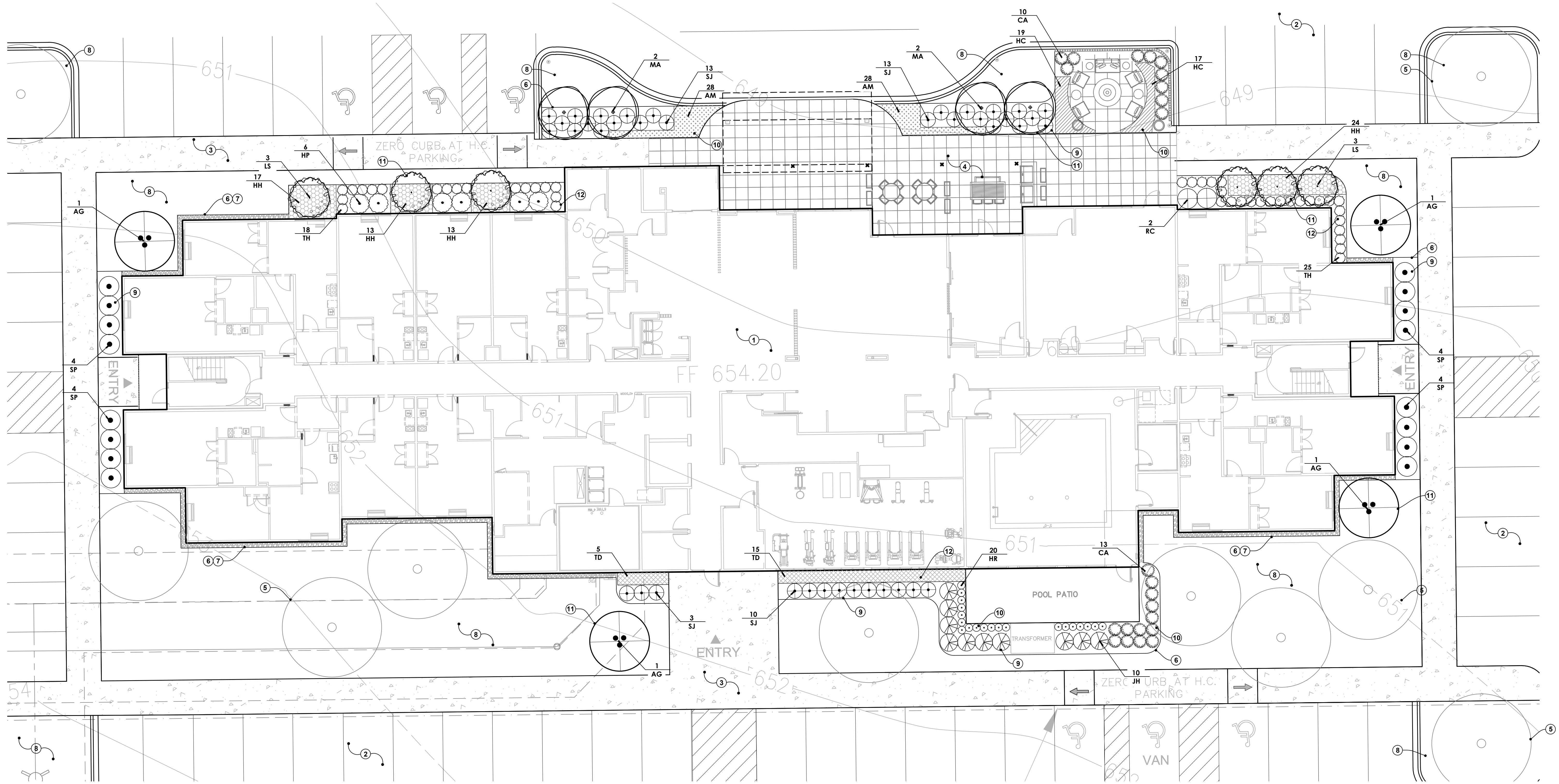
TOWNSHIP SUITES HOTEL
71751 Phoenix St. (CR 388)
Southaven, Michigan

Project Sponsor:

Mr. Sam Sandiha
29870 Middlebet Road
Farmington Hills, MI 48334

Sheet Name:

**Foundation
Landscape Plan**



MAINTENANCE NOTES

ALL LANDSCAPE MATERIALS, INSTALLATION, AND MAINTENANCE SHALL COMPLY W/ ZONING ORDINANCE.

ALL PLANT MATERIAL SHALL BE LOCALLY GROWN OR OF THIS NORTH MIDWEST AMERICAN REGION AND CONFORM TO THE CURRENT AAN STANDARDS. USE NO.1 GRADE PLANT MATERIAL.

ALL PLANT MATERIAL SHALL BE MAINTAINED IN A HEALTHY GROWING CONDITION FREE OF WEEDS AND DEBRIS WITH ONE CULTIVATION FOR WEED CONTROL PER MONTH DURING JUNE, JULY AND AUGUST. THIS ESTABLISHMENT PERIOD SHALL BE ONE (1) YEAR FROM THE DATE OF APPROVAL OF PLANTINGS BY THE TOWNSHIP. FAILING PLANT MATERIAL SHALL BE REPLACED WITHIN ONE YEAR.

ALL TREE WRAP, STAKES AND GUY WIRES SHALL BE REMOVED AFTER ONE WINTER SEASON.

PLANT SCHEDULE

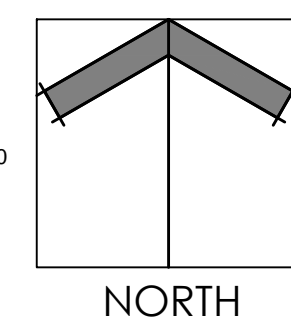
TREES							
QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ROOT	COMMENTS
4	AG	<i>Amalanchier x g. 'Autumn Brilliance'</i>	Autumn Brilliance Serviceberry	7'-8' ht.	as shown	B&B	Minimum 5 stems
6	LS	<i>Liquidambar s. 'Slender Silhouette'</i>	Slender Silhouette Sweetgum	2.5" cal.	as shown	B&B	Single straight trunk
4	MA	<i>Malus 'Adirondak'</i>	Adirondak Crabapple	2" cal.	as shown	B&B	Single straight trunk
5	AR	<i>Acer r. 'October Glory'</i>	October Glory Red Maple	2.5" cal.	as shown	B&B	Single straight trunk
6	GT	<i>Gleditsia t. 'Skyline'</i>	Skyline Honeylocust	2.5" cal.	as shown	B&B	Single straight trunk
20	PA	<i>Picea abies</i>	Norway Spruce	7' ht.	as shown	B&B	Unsheared, branched to ground
3	PS	<i>Pinus strobus</i>	White Pine	8' ht.	as shown	B&B	Unsheared, branched to ground
14	NS	<i>Nyssa sylvatica</i>	Black Tupelo	2.5" cal.	as shown	B&B	Single straight trunk
7	QR	<i>Quercus rubra</i>	Red Oak	2.5" cal.	as shown	B&B	Single straight trunk
9	TA	<i>Tilia americana 'Redmond'</i>	Redmond American Basswood	2.5" cal.	as shown	B&B	Single straight trunk
SHRUBS							
6	HP	<i>Hydrangea p. 'Little Quick Fire'</i>	Little Quick Fire Hydrangea	30" ht.	as shown	cont.	Well rooted
2	RC	<i>Rhododendron c. 'Boursault'</i>	Boursault Rhododendron	36" ht.	as shown	cont.	Well rooted
16	SP	<i>Syringa p. 'Miss Kim'</i>	Miss Kim Dwarf Korean Lilac	36" ht.	as shown	cont.	Well rooted
20	TD	<i>Taxus x m. 'Densiflora'</i>	Dense Yew	30" ht.	30" o.c.	cont.	Well rooted
39	SJ	<i>Spirea japonica 'Neon Flash'</i>	Neon Flash Spirea	24" ht.	as shown	cont.	Well rooted
10	JH	<i>Juniperus c. 'Hetz Columnar'</i>	Hetz Columnar Juniper	48" ht.	as shown	B&B	
43	TH	<i>Taxus x m. 'Hicksii'</i>	Hicks Yew	30" ht.	24" o.c.	B&B	Trim to Hedge
PERENNIALS							
67	HH	<i>Hosta 'Halcyon'</i>	Halcyon Hosta	#1	24" o.c.	cont.	Well rooted
56	AM	<i>Allium 'Millenium'</i>	Millenium Ornamental Onion	#1	18" o.c.	cont.	Well rooted
36	HC	<i>Heuchera 'Palace Purple'</i>	Palace Purple Coralbells	#1	18" o.c.	cont.	Well rooted
23	CA	<i>Calamagrostis a. Karl Foerster'</i>	Karl Foerster Feather Reed Grass	#2	as shown	cont.	Well rooted
20	HR	<i>Hemerocallis 'Happy Returns'</i>	Happy Returns Daylily	#1	as shown	cont.	Well rooted

NOTE KEY:

- ① PROPOSED HOTEL, SEE ARCHITECTURE
- ② PROPOSED PARKING LOT, SEE CIVIL ENGINEERING DRAWINGS
- ③ PROPOSED CONCRETE SIDEWALK, TYPICAL
- ④ DECORATIVE PAVING PER HOTEL STANDARDS
- ⑤ METAL EDGED CANOPY TREES, SEE SHEET L-1
- ⑥ METAL EDGING BETWEEN LAWN AND LANDSCAPE BEDS, TYPICAL
- ⑦ 12" WIDE x 4" DEPTH STONE MAINTENANCE STRIP OVER FABRIC
- ⑧ SODDED LAWN OVER MINIMUM 3" DEPTH TOPSOIL, SEE GENERAL LANDSCAPE NOTES SHEET L-1
- ⑨ SHRUB PLANTING, SEE TYPICAL DETAIL SHEET L-3
- ⑩ PERENNIAL / GROUND COVER PLANTING, SEE TYPICAL DETAIL SHEET L-3
- ⑪ ORNAMENTAL TREE, SEE TYPICAL DETAIL SHEET L-3
- ⑫ EVERGREEN HEDGE PLANTING, SEE TYPICAL DETAIL SHEET L-3

**NOT FOR
CONSTRUCTION**

0 5 10 20
SCALE: 1" = 10'-0"



Seal:



Drawn: JG
Checked: JG
Date: 02.2024
Scale: As Noted

Project Number:

24.019

Sheet Number:

L-2



Material and Performance Specification Sheet

S150 Erosion Control Blanket

The short-term double net erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of up to 12 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with a lightweight photodegradable polypropylene netting having an approximate 0.50 x 0.50 (1.27 x 1.27 cm) mesh. The blanket shall be seen together on 1.50 inches (3.81 cm) centers with degradable fringes.

The S150 shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the US Department of Transportation, Federal Highway Administration's (FHWA) Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, Part 3-03 Section 712.17 as a type 2.0 Short-Term Double Net Erosion Control Blanket. The blanket shall be manufactured with a covered thread stitched along both outer edges (approximately 2-4 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

Material Content	Weight	Volume
100% Straw Fiber	0.5 lbs/yd ² (0.27 kg/m ²)	1.4 m ³ /1000 ft ² (0.73 kg/100 m ²)
Top and Bottom nets, lightweight photodegradable	approx. weight	
Thread	Degradable	

S150 is available in the following standard roll sizes:

Width	Length	Weight ± 10%	Area
4.0 ft (1.2 m)	6.87 ft (2.09 m)	18 lbs (8.17 kg)	18 ft ² (1.67 m ²)
13.8 ft (4.14 m)	108 ft (32.92 m)	108 lbs (49.00 kg)	1490 ft ² (138 m ²)
30 lbs (13.6 kg)	40 lbs (18.14 kg)	86 lbs (39.00 kg)	192 yd ² (176.5 m ²)

Index Value Properties:

Property	Test Method	Typical
Thickness	ASTM D6026	0.20 in (5.14 mm)
Resiliency	ECTC Guidelines	80-95%
Water Absorbency	ASTM D1117	514%
Moisture Area	ASTM 6415	10.92 sq/yd (107.7 g/m ²)
Swell	ECTC Guidelines	15%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	6.06 sq/in
Light Penetration	ECTC Guidelines	9.6%
Tensile Strength - MD	ASTM D9818	189.2 lbs/ft (2.51 kN/m)
Elongation - MD	ASTM D9818	17.2%
Tensile Strength - TD	ASTM D9818	164.4 lbs/ft (2.44 kN/m)
Elongation - TD	ASTM D9818	33.1%

Performance Design Values:	
Maximum Permissible Shear Stress	1.17 lb/ft ² (84 Pa)
Unvegetated Shear Stress	1.17 lb/ft ² (84 Pa)
Unvegetated Velocity	6.00 ft/s (1.83 m/s)

Slope Design Data: C Factors	
Slope Length (L)	≤ 3.1 2.1 - 2.1 2.1
≤ 20 ft (6 m)	0.004 0.106 NA
20-50 ft	0.062 0.118 NA
≥ 50 ft (15.2 m)	0.12 0.180 NA

Roughness Coefficients: Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.095
0.50 - 2.0 ft	0.095 - 0.021
≥ 2.0 ft (0.60 m)	0.021

Test Method	Parameters	Results
ECTC Method 2	150 mm (2 1/4") for 30 min	SL ₁₅₀ = 8.04
Rainfall	100mm (4 1/4") for 30 min	SL ₁₀₀ = 10.48
ECTC Method 3	150 mm (6 1/4") for 30 min	SL ₁₅₀ = 13.67
ECTC Method 4	Shear at 1.50 inch soil box	2.1 lb/ft ²

Test Method	Parameters	Results
ECTC Method 4	1 in Soil, Freeze, 21 day	48% Improvement of biomass
Germiation	Inhibition	2.00

Product Participant of: **DOR**

Updated 3/09

BASIN BOTTOM MIX- INCLUDE S150 BLANKET ENTIRE AREA

Emergent Wetland Seed Mix	Common Name	PLS
Permanent Grasses/Sedges/Rushes:		
Carex comosa	Bristly Sedge	2.50
Carex lacustris	Common Lake Sedge	0.25
Carex lurida	Bottlebrush Sedge	4.00
Carex vulpinoidea	Brown Fox Sedge	6.00
Eleocharis ovata	Blunt Spike Rush	1.00
Juncus effusus	Common Rush	1.00
Leersia orzyoides	Rice Cut Grass	3.00
Scirpus acutus	Hard-Stemmed Bulrush	2.50
Scirpus pungens	Chairmaker's Rush	4.00
Scirpus validus	Great Bulrush	6.00
Total		30.25
Temporary Cover:		
Avena salvia	Common Oat	360.00
Lolium multiflorum	Annual Rye	104.00
Total		464.00
Forbs:		
Asclepias incarnata	Swamp Milkweed	1.50
Alisma spp.	Water Plantain	2.00
Cephalanthus occidentalis	Button Bush	1.00
Decodon verticillatus	Swamp Loosestrife	1.25
Eupatorium maculatum	Spotted Joe-Pye Weed	0.50
Iris virginica	Blue Flag Iris	6.00
Lobelia cardinalis	Cardinal Flower	0.25
Lobelia siphilitica	Great Blue Lobelia	1.50
Ludwigia alternifolia	Seedbox	0.25
Mimulus ringens	Monkey Flower	1.00
Peltandra virginica	Arrow Arum	16.00
Pontederia cordata	Pickereel Weed	10.00
Sagittaria latifolia	Broad-Leaf Arrowhead	2.00
Sparganium americanum	American Bur Reed	2.00
Sparganium eurycarpum	Common Bur Reed	4.00
Verbena hastata	Blue Vervain	1.00
Zizania aquatica	Wild Rice	8.00
Total		58.25

SEED MIX NOTES

- The seed mixes shall be applied at the specified rate of for each mix.
- Must be installed to manufacturer specification and requirements.
- Seed to be covered with North American Green S150 or equivalent erosion control blanket installed to manufacturer specifications.

Seed Mix Available From: **Cardo JF New, Inc.**
128 Sunset Drive
Walkerton, IN 46574
574-586-2412

NATIVE SEEDING MAINTENANCE

During the first growing season, native areas should be mowed a minimum of four times to height of about 4" - 6" when the growth reaches 10" - 12". Selective herbicide applications or hand pulling may be needed to control unwanted weed populations. If a mower cannot be set high enough, a string trimmer may be used.

During the second growing season, native areas should be mowed a minimum of two times to height of about 8" when the growth reaches 10" - 18". Selective herbicide applications or hand pulling may be needed to control unwanted weed populations.

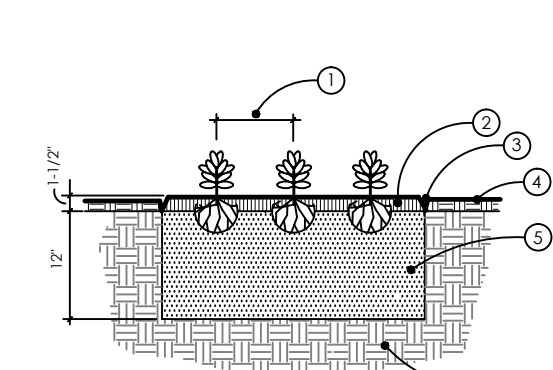
By the second growing season it should be apparent if some areas need reseeding. Reseed or overseed as needed to provide for full coverage.

Long term management may include prescribed burning, mowing, hand pulling, and selective herbicide applications. If burning is not allowed or feasible, the planting may be mowed to a short height and the clippings removed in the early spring before ground nesting birds begin nesting.

TURF GRASS MIX - RHINO SEED

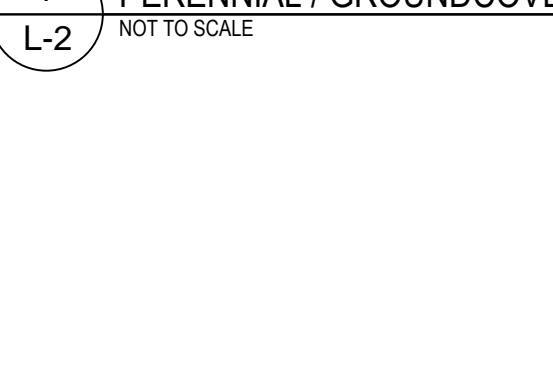
Sunny Mix
20% KY. BLUEGRASS
20% CR. RED FESCUE
20% TURF TYPE PER. RYE.
20% TURF TYPE PER. RYE.
10% ELITE KY. BLUE
10% ELITE KY. BLUE

Spread at a rate of 7 lbs./1000 sf. All disturbed areas not specified to receive sod
No noxious weed seeds permitted.



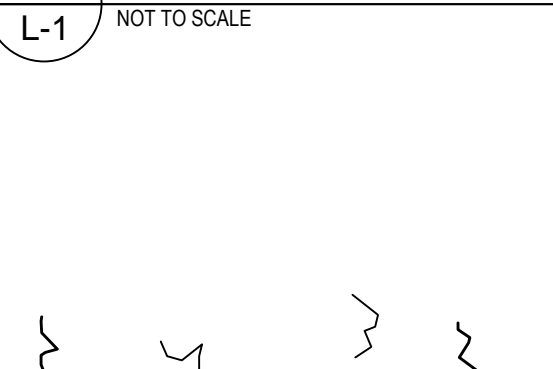
- NOTES:
- CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
 - SEE PLANT SCHEDULE FOR SPACING
 - 2\"/>

PERENNIAL / GROUND COVER PLANTING (L-2)



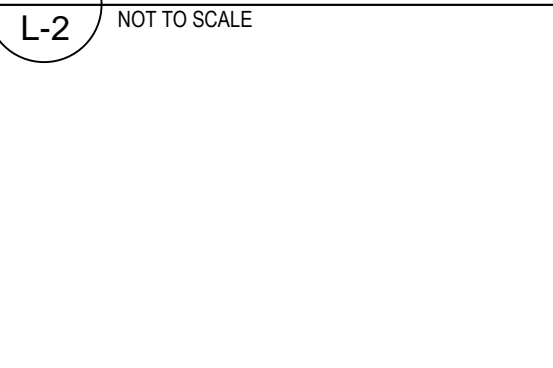
- NOTES:
- CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
 - SET TOP OF ROOTBALL 2\"/>

SHRUB PLANTING (L-1)

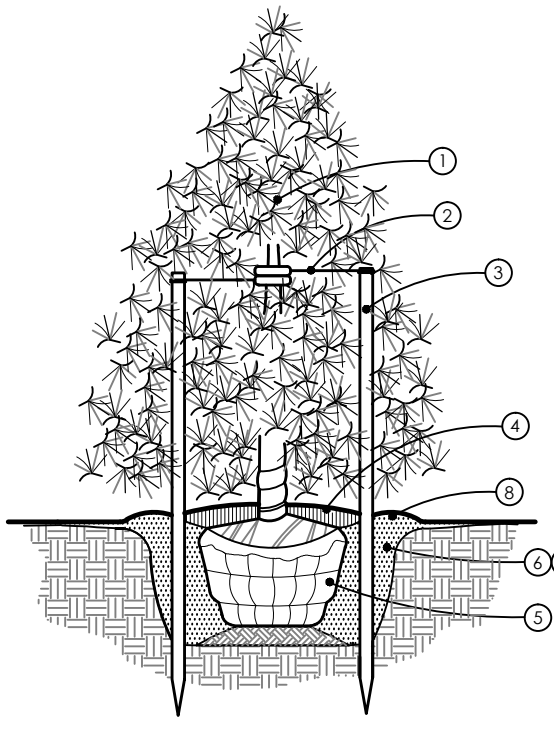


- NOTES:
- CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
 - SET TOP OF ROOTBALL 3\"/>

MULTISTEM TREE PLANTING (L-2)

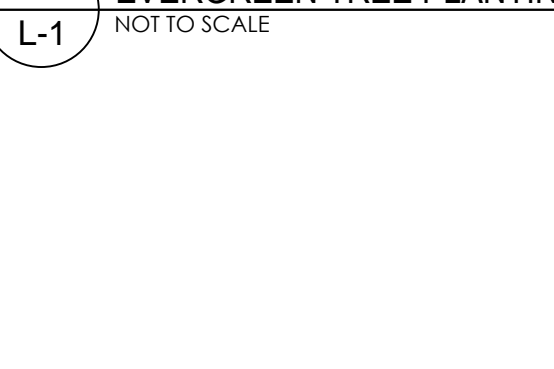


- NOTES:
- CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
 - SET TOP OF ROOTBALL 2\"/>



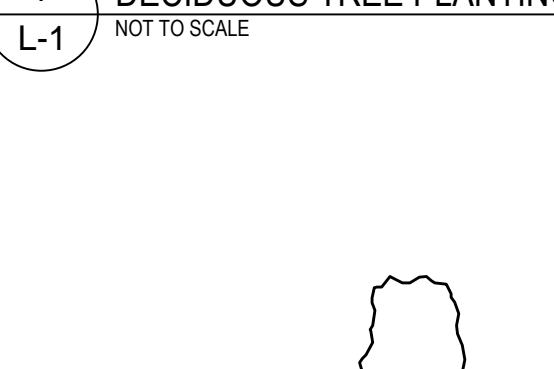
- NOTES:
- REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER MATERIALS WHICH ARE UNSIGHTLY OR COULD CAUSE GIRDLING
 - STAKE TREES WITH 2\"/>

EVERGREEN TREE PLANTING (L-1)



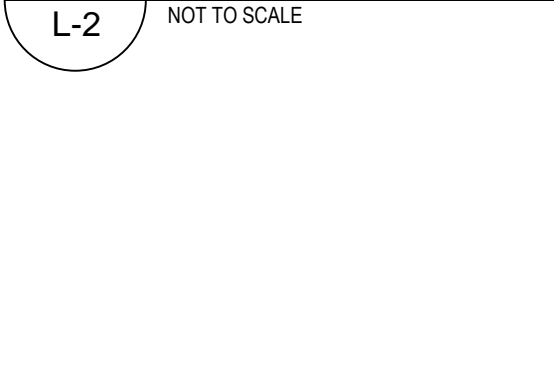
- NOTES:
- REMOVE SECONDARY LEADERS. DO NOT PRUNE TERMINAL LEADER OR BRANCH TOPS. PRUNE ALL DEAD AND BROKEN BRANCHES.
 - REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER MATERIALS WHICH ARE UNSIGHTLY OR COULD CAUSE GIRDLING
 - STAKE TREES JUST BELOW FIRST BRANCH WITH 2\"/>

DECIDUOUS TREE PLANTING (L-1)



- NOTES:
- CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
 - SET TOP OF ROOTBALL 2\"/>

HEDGE PLANTING (L-2)



- NOTES:
- CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
 - SET TOP OF ROOTBALL 2\"/>

TOWNSHIP SUITES HOTEL
71751 Phoenix St. (CR 388)
Southaven, Michigan

Project Sponsor:
Mr. Sam Sandiha
29870 Middlebet Road
Farmington Hills, MI 48334

Landscape details



Drawn: JG
Checked: JG
Date: 02.2024
Scale: AS NOTED

NOT FOR CONSTRUCTION



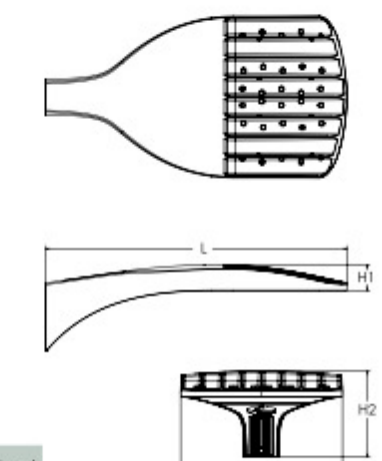
TOWNSHIP SOUTHWEST
PHOTOMETRIC SITE PLAN
GASSER BUSH ASSOCIATES
PREPARED FOR: UMLOR GROUP
WWW.GASSERBUSH.COM

D-Series Size 0 LED Area Luminaire



Specifications

EPA: 0.44 ft² (0.041 m²)
Length: 26.18" (66.9 cm)
Width: 14.06" (35.7 cm)
Height H1: 2.26" (5.7 cm)
Height H2: 7.46" (18.9 cm)
Weight: 23 lbs (10.4 kg)



Introduction
The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.
The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications, with typical energy savings of 70% and expected service life of over 100,000 hours.

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect. *See ordering tree for details.

Ordering Information

EXAMPLE: DSX0 LED P6 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DBXKD

Series	LEDs	Color Temperature	Color Rendering Index	Distribution	Mounting	Shipped Included
DSX0 LED	Forward optics					
	P1 P5	30K 3000K	70CRI	AFR Automotive front row	MVOLT 120V-277V	SPR Square pole mounting (8' drilling, 3.5" min. 50 pole)
	P2 P6	40K 4000K	70CRI	T15 Type I short	MVOLT 247V-480V	RPA Round pole mounting (8' drilling, 3" min. 50 pole)
Related optics						
P3 P7	50K 5000K	70CRI	T2M Type II medium	BLCK Type III backlight control	208" x 4"	SPRS Square pole mounting (8' drilling, 3" min. 50 pole)
P4	Related optics					
P11 P12	27K 2700K	80CRI	T1G Type I low glare	BLCA Type III backlight control	240" x 4"	RPS Round pole mounting (8' drilling, 3" min. 50 pole)
P13	30K 3000K	80CRI	T2M Type II medium	LCCD Left corner cutoff	347" x 4"	SPRBN Square narrow pole mounting (8' drilling, 3" min. 50 pole)
P14	39K 3900K	80CRI	T4G Type IV low glare	RCCD Right corner cutoff	480" x 4"	MA Mast arm adapter (mounts on 2.38" OD horizontal brace)
P15	40K 4000K	80CRI	T5M Type V medium			
P16	50K 5000K	80CRI				

Control options	Other options	Finish options
Shipper installed NLTAIR2 PIRHN Slight tilt (2" enabled with bi-level motor) / Ambient sensor 4" / 40" mounting height / Ambient sensor enabled at 26" / 50" PR High flow, motion/ambient sensor 4" / 40" mounting height / Ambient sensor enabled at 26" / 50" PER NEMA twist lock receptacle only / Ambient sensor enabled at 26" / 50" PER5 Five-pin receptacle only (Ambient sensor)	Shipper installed IS Neouside shield (black finish standard) L90 Left rotated optics R90 Right rotated optics CCE Coastal Construction MA SPC above operation BAA Bay America's Act Compliant SF Single face (120, 277, 347V) DF Double face (120, 240, 480V) Shipped separately EGSR External Glass Shield (reversible, field install required, matches housing finish) R50B Red Spikes (field install required)	DBXKD Dark bronze DBXDK Black DBXAD Natural Aluminum DBXWD White DBXBD Bead blasted dark bronze DBXBD Natural DBXAD Natural aluminum DBXWD White

LITHONIA LIGHTING
One Lithonia Way • Conyers, Georgia 30012 • Phone: 1-800-705-SERV (7378) • www.lithonia.com
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WPX LED Wall Packs



Specifications

Front View
Side View

Luminaire	Height (H)	Width (W)	Depth (D)	Side Cord Location	Weight
WPX1	8.1" (20.6 cm)	11.1" (28.3 cm)	4.0" (10.2 cm)	A, B	6.1 lbs (2.8 kg)
WPX2	8.1" (20.6 cm)	12.3" (31.1 cm)	4.1" (10.5 cm)	A, B	8.2 lbs (3.7 kg)
WPX3	9.5" (24.1 cm)	13.0" (33.0 cm)	5.5" (13.9 cm)	A, B	11.0 lbs (5.0 kg)

Introduction
The WPX LED wall packs are energy-efficient, cost-effective, and aesthetically appealing solutions for both HID wall pack replacement and new construction opportunities. Available in three sizes, the WPX family delivers 1,550 to 9,200 lumens with a wide, uniform distribution.
The WPX full cut-off solutions fully cover the footprint of the HID glass wall packs that they replace, providing a neat installation and an upgraded appearance. Reliable IP66 construction and excellent LED lumen maintenance ensure a long service life. Photocell and emergency egress battery options make WPX ideal for every wall mounted lighting application.

Ordering Information

EXAMPLE: WPX2 LED 40K MVOLT DBXKD

Series	Color Temperature	Voltage	Options	Finish
WPX1 LED P1	1,550 Lumens, 1W	30K 3000K	MVOLT 120V-277V	DBXKD Dark bronze
WPX1 LED P2	2,900 Lumens, 2W	40K 4000K	347 347V	DBXWD White
WPX2 LED	6,000 Lumens, 4W	50K 5000K	E14WC Emergency battery backup, CEC compliant (14W, 20' max)	DBXKD Dark bronze
WPX3 LED	9,200 Lumens, 6W		PE Photocell	DBXKD Dark bronze

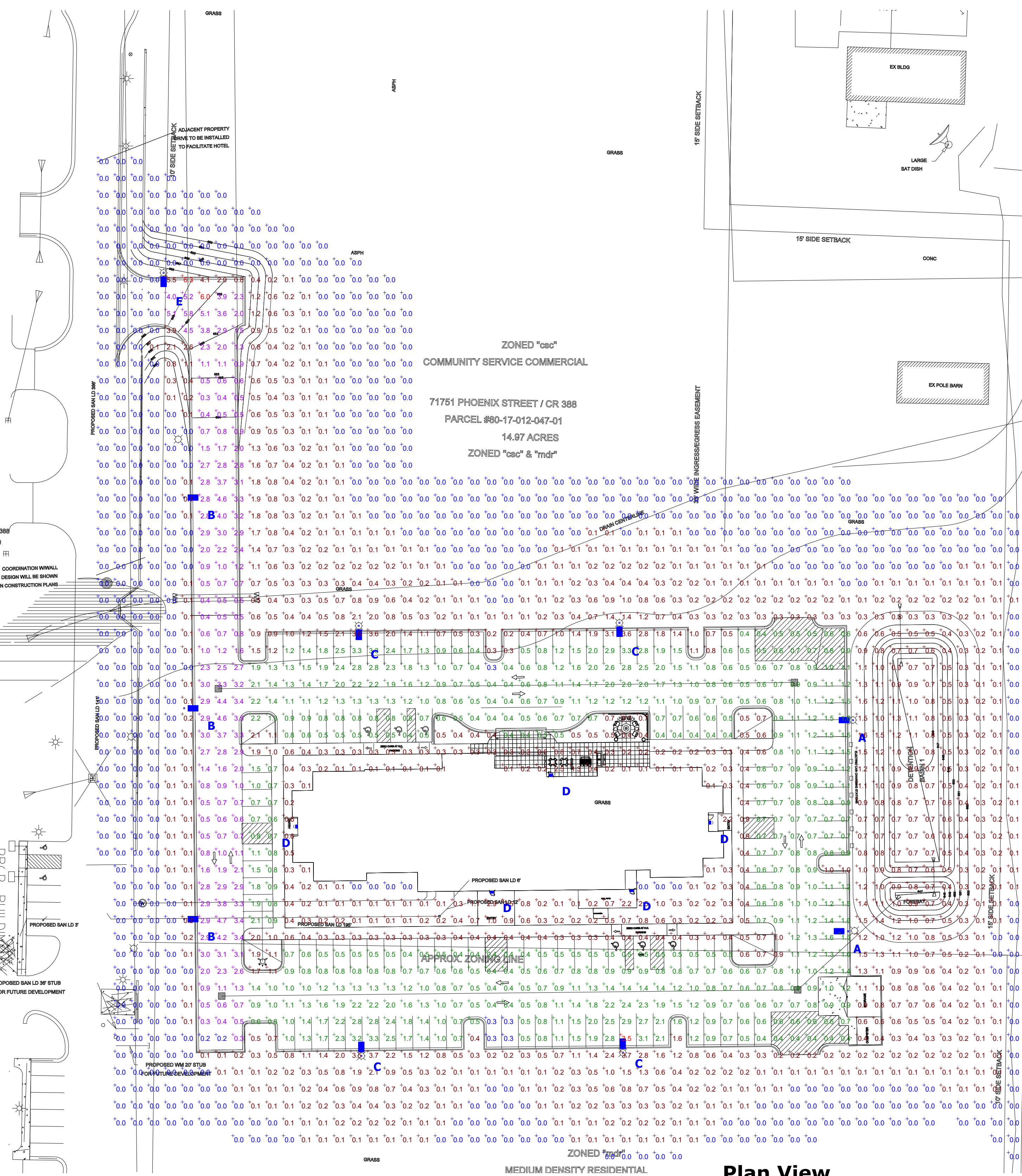
Note: The lumen output and input power shown in the ordering tree are average representations of all configuration options. Specific values are available on request.
NOTE: 1. All WPX wall packs come with 6W surge protection standard, except WPX1 LED P1 package which comes with 2.5W surge protection standard. Add SPD6W option to get WPX1 LED P1 with 6W surge protection. Sample nomenclature: WPX1 LED P1 40K MVOLT SPD6W DBXKD
2. Battery pack options only available on WPX2 and WPX3.
3. Battery pack options not available with 347V or PE options.

FEATURES & SPECIFICATIONS

INTENDED USE
The WPX LED wall packs are designed to provide a cost-effective, energy-efficient solution for the one-for-one replacement of existing HID wall packs. The WPX1, WPX2, and WPX3 are ideal for replacing up to 150W, 250W, and 400W HID luminaires respectively. WPX luminaires deliver a uniform, wide distribution. WPX is rated for 40°C to 80°C.
CONSTRUCTION
WPX feature a die-cast aluminum main body with optional thermal management that both enhances LED efficacy and extends component life. The luminaires are IP66 rated, and tested against moisture or environmental contaminants.
ELECTRICAL
Light-emitting diodes consist of high-efficiency LEDs and LED lumen maintenance of 100,000 hours. Color temperature (CCT) options of 3000K, 4000K and 5000K with minimum CRI of 70. Electronic drivers feature system power factor >95% and THD <20%. All luminaires have 6W surge protection (Note: WPX1 LED P1 package comes with a standard surge protection rating of 2.5W). It can be ordered with optional 6W surge protection. All photocell (PE) operate on MVOLT (120V-277V) input.
Note: The standard WPX LED wall pack luminaires come with field-adjustable drive current feature. This feature allows tuning the output current of the LED drivers to adjust the luminaire output to dim the luminaire.

INSTALLATION
WPX can be mounted directly over a standard electrical junction box. Three 1/2" inch conduit ports on three sides allow for surface conduit wiring. A port on the back surface allows poke-through conduit wiring on surfaces that don't have an electrical junction box. Wiring can be made in the integral wiring compartment in all sizes. WPX is only recommended for installations with LEDs facing downwards.
LISTINGS
CEC Certified to meet U.S. and Canadian standards. Suitable for wet locations. IP66 Rated. DesignLights Consortium (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Product List at www.designlightsconsortium.com to confirm which versions are qualified. International Dark Sky Association (IDA) Fixture Seal of Approval (FSAA) is available for all products on the page utilizing 3000K color temperature only.
WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at www.lithonia.com/warranty.
Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.

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Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT
QUOTES@GASSERBUSH.COM OR 734-266-6705.

Drawing Note

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

General Note

- SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
- SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
- CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0".

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIREMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705

Symbol	Label	QTY	Manufacturer	Description	Mounting Height
□	A	2	Lithonia Lighting	D-Series Size 0 Area Luminaire 4000K	20'-0"
□	B	3	Lithonia Lighting	D-Series Size 0 Area Luminaire 4000K	20'-0"
□	C	4	Lithonia Lighting	D-Series Size 0 Area Luminaire 4000K	20'-0"
□	D	5	Lithonia Lighting	WPX1 LED 4000K	10'-0"
□	E	1	Lithonia Lighting	D-Series Size 0 Area Luminaire 4000K	20'-0"

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
OVERALL	+	0.5 fc	6.3 fc	0.0 fc	N/A	N/A	0.1:1
PARKING LOT	+	1.0 fc	3.5 fc	0.3 fc	11.7:1	3.3:1	0.3:1
ENTRY ROAD	+	2.0 fc	6.0 fc	0.2 fc	30.0:1	10.0:1	0.3:1

GBA EV CHARGERS

Energize with confidence!
Contact our EV Charging Team to source and specify industry leading hardware and software solutions.

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Designer
DB/KB
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05/03/2024
rev. 07/25/2024
rev. 12/20/2024
Scale
Not to Scale
Drawing No.
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