CONSUMERS ENERGY COMPANY
J.H. CAMPBELL GENERATING FACILITY
DRY ASH LANDFILL EXPANSION CONSTRUCTION PERMIT APPLICATION

SECTIONS 10,11,14 & 15, T6N, R16W
PORT SHELDON TOWNSHIP
OTTAWA COUNTY, MICHIGAN

PREPARED FOR:

Consumers Energy
Count on Us

CONSUMERS ENERGY COMPANY
J.H. CAMPBELL GENERATING PLANT
17000 CROSWELL STREET
WEST OLIVE, MI 49460

PREPARED BY:

GOLDER
MEMBER OF WSP

GOLDER ASSOCIATES INC.
15851 SOUTH US 27
SUITE 50
LANSING, MI 48906



REFERENCE(S)

1. AERIAL PHOTO FOR AREA INSIDE THE DRY ASH LANDFILL WAS PROVIDED BY A DRONE SURVEY PERFORMED BY MACATAWA UNMANNED SYSTEMS, LLC IN APRIL 2020.
2. AERIAL PHOTO FOR AREAS OUTSIDE THE DRY ASH LANDFILL WAS PROVIDED BY AN AERIAL SURVEY PERFORMED BY ROWE PROFESSIONAL SERVICES IN OCTOBER 2012. AREAS AROUND POND A, BOTTOM ASH PONDS 1-2 AND 3S WERE PROVIDED BY A DRONE SURVEY PERFORMED BY RYAN INCORPORATED CENTRAL IN OCTOBER 2018.

DRAWING LIST		
SHEET NUMBER	DRAWING TITLE	DRAWING REV.
100-1	TITLE SHEET	0
100-2	LEGEND, REFERENCES AND GENERAL NOTES	0
200-1	EXISTING PROPERTY SITE PLAN AND LEGAL DESCRIPTION	0
200-2	SETBACK REQUIREMENTS - SHEET 1	0
200-3	SETBACK REQUIREMENTS - SHEET 2	0
200-4	SETBACK REQUIREMENTS - SHEET 3	0
200-5	SETBACK REQUIREMENTS - SHEET 4	0
200-6	SETBACK REQUIREMENTS - SHEET 5	0
200-7	UTILITY PLAN	0
HYDROGEOLOGICAL DRAWINGS ARE INCLUDED IN SECTION C - DRY ASH LANDFILL HYDROGEOLOGICAL, PREPARED BY TRC, DATED OCTOBER 2020.		
300-1	HISTORICALLY HIGH GROUNDWATER POTENTIOMETRIC ELEVATION MAP	0
400-1	TOP OF SUBGRADE PLAN	0
400-2	LEACHATE COLLECTION SYSTEM PLAN	0
400-3	TOP OF FINAL COVER PLAN	0
400-4	FILLING PROGRESSION PLAN - SHEET 1	0
400-5	FILLING PROGRESSION PLAN - SHEET 2	0
400-6	FILLING PROGRESSION PLAN - SHEET 3	0
400-7	FILLING PROGRESSION PLAN - SHEET 4	0
400-8	FILLING PROGRESSION PLAN - SHEET 5	0
500-1	TYPICAL LANDFILL CROSS SECTIONS - SHEET 1	0
500-2	TYPICAL LANDFILL CROSS SECTIONS - SHEET 2	0
500-3	MATERIAL PROPERTIES TABLE	0
500-4	BASE LINER SYSTEM DETAILS	0
500-5	LEACHATE COLLECTION SYSTEM DETAILS - SHEET 1	0
500-6	LEACHATE COLLECTION SYSTEM DETAILS - SHEET 2	0
500-7	LEACHATE COLLECTION SYSTEM DETAILS - SHEET 3	0
500-8	FINAL COVER DETAILS - SHEET 1	0
500-9	FINAL COVER DETAILS - SHEET 2	0
600-1	LEACHATE TRANSFER SYSTEM PLAN	0
600-2	LEACHATE TRANSFER SYSTEM PROFILE	0
600-3	LEACHATE TRANSFER SYSTEM DETAILS	0
700-1	STORMWATER MANAGEMENT PLAN	0
700-2	STORMWATER MANAGEMENT DETAILS - SHEET 1	0
700-3	STORMWATER MANAGEMENT DETAILS - SHEET 2	0
800-1	LANDSCAPING PLAN	0

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER NO. 49160
LICENSED PROFESSIONAL ENGINEER
7/7/21

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No.: 6201049160

Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

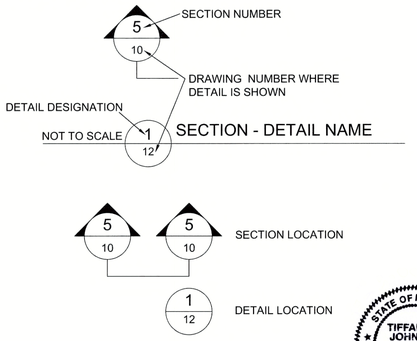
TITLE SHEET

SCALE: NONE
JOB: PT-02661
DRAWING NO.: ---
SHEET: 100-1
REV.: 0

REFERENCE(S) & NOTES

1. SITE LOCATION: SECTIONS 10, 11, 14 & 15, T6N, R16W, OTTAWA COUNTY, MICHIGAN.
2. EXISTING GROUND TOPOGRAPHY FOR INSIDE THE LANDFILL WAS PROVIDED BY AERIAL MAPPING PERFORMED BY MACATAWA US IN APRIL 2020 FOR THE ACTIVE AREAS AND FUTURE CELL AREAS AND BY ENGINEERING & ENVIRONMENTAL SOLUTIONS, LLC IN NOVEMBER 2011 FOR THE INACTIVE AREAS. CONTOURS WITHIN THE CLOSURE AREAS FOR PHASE I THROUGH PHASE VI REPRESENT FINAL COVER GRADES AT TIME OF CLOSURE.
3. EXISTING GROUND TOPOGRAPHY FOR AREAS OUTSIDE OF THE LANDFILL PROVIDED BY AERIAL SURVEYS PERFORMED BY ROWE PROFESSIONAL SERVICES IN JUNE 2007 AND APRIL 2012 (DRAWINGS 20929BASE-PLANT.dwg AND NEDERVELD SURVEY-2007.dwg PROVIDED BY CEC ON 3/13/2015).
4. EXISTING CELL AND LEACHATE POND INFORMATION DERIVED FROM THE FOLLOWING:
   - 4.1. J.H. CAMPBELL ASH STORAGE FACILITY EXPANSION AMENDMENT FOR CONSTRUCTION PERMIT APPLICATION PREPARED BY STS CONSULTANTS LTD. IN NOVEMBER 1993.
   - 4.2. J.H. CAMPBELL ASH STORAGE FACILITY EXPANSION CELL 1 AND LEACHATE POND CONSTRUCTION DRAWINGS PREPARED BY STS CONSULTANTS LTD. IN JULY 1994 AND INCORPORATES ALL DESIGN CHANGES THROUGH OCTOBER 31, 1995.
   - 4.3. J.H. CAMPBELL CELL 2 CONSTRUCTION DRAWINGS PREPARED BY CONSUMERS ENERGY AND ISSUED FOR RECORD ON DECEMBER 7, 1998.
   - 4.4. J.H. CAMPBELL CELL 3 CONSTRUCTION DRAWINGS PREPARED BY STS CONSULTANTS LTD. AND ISSUED FOR CONSTRUCTION ON MARCH 11, 2002.
   - 4.5. J.H. CAMPBELL EAST LEACHATE POND CONSTRUCTION DRAWINGS PREPARED BY ENGINEERING AND ENVIRONMENTAL SOLUTIONS, LLC. IN MAY 2007.
   - 4.6. J.H. CAMPBELL CELL 4 LINER CERTIFICATION DRAWINGS PREPARED BY ENGINEERING AND ENVIRONMENTAL SOLUTIONS, LLC. IN DECEMBER 2008.
   - 4.7. J.H. CAMPBELL CELL 5 LINER CERTIFICATION DRAWINGS PREPARED BY GOLDER IN SEPTEMBER 2018.
5. EXISTING FINAL COVER INFORMATION DERIVED FROM THE FOLLOWING:
   - 5.1. J.H. CAMPBELL ASH STORAGE FACILITY 2006 FINAL COVER CONSTRUCTION (PHASE I AS-CONSTRUCTED) DRAWINGS PREPARED BY ENGINEERING AND ENVIRONMENTAL SOLUTIONS, LLC. IN JANUARY 2007.
   - 5.2. J.H. CAMPBELL ASH STORAGE FACILITY PHASE II FINAL COVER CERTIFICATION DRAWINGS PREPARED BY ENGINEERING AND ENVIRONMENTAL SOLUTIONS, LLC. IN DECEMBER 2007.
   - 5.3. J.H. CAMPBELL PHASE III CLOSURE DRAWINGS PREPARED BY NTH CONSULTANTS, LTD. IN OCTOBER 2009.
   - 5.4. J.H. CAMPBELL ASH STORAGE FACILITY PHASE IV FINAL COVER CERTIFICATION DRAWINGS PREPARED BY ENGINEERING AND ENVIRONMENTAL SOLUTIONS, LLC. IN OCTOBER 2012.
   - 5.5. J.H. CAMPBELL ASH STORAGE FACILITY PHASE V FINAL COVER CERTIFICATION DRAWINGS PREPARED BY ENGINEERING AND ENVIRONMENTAL SOLUTIONS, LLC. IN SEPTEMBER 2014.
   - 5.6. J.H. CAMPBELL ASH STORAGE FACILITY PHASE VI 2019 LANDFILL CLOSURE RECORD DRAWINGS PREPARED BY GOLDER IN SEPTEMEBER 2019.
6. GROUNDWATER INFORMATION DERIVED FROM "JHC WATER LEVEL MAX 2017 - 2020_BOTH DATUMS" DATED JULY 17, 2020 AND DRAWING "GROUNDWATER CONTOUR MAP 2017-2020 MAXIMUM STATIC WATER ELEVATION" DATED JULY 2020 PROVIDED BY CONSUMERS ENERGY AND PREPARED BY TRC ENVIRONMENTAL. THESE CONTOURS ARE SHOWN ON THESE DRAWINGS AND ARE THE HISTORICALLY HIGH GROUNDWATER LEVELS.
7. VERTICAL DATUM:
   CONSUMERS ENERGY J.H. CAMPBELL LOCAL PLANT DATUM, NGVD29.
   NGVD29 = NAVD88 + 0.495'
8. HORIZONTAL DATUM:
   CONSUMERS ENERGY J.H. CAMPBELL LOCAL PLANT DATUM.
   LOCAL PLANT DATUM ASSUMES SOUTH BENCHMARK COORDINATES:
   NORTHING = 0
   EASTING = 0
9. SOLID WASTE BOUNDARY SHOWN IS PROVIDED FROM THE ORIGINAL CONSTRUCTION PERMIT APPLICATION, DATED DECEMBER 15,1993, PERMIT NO. 0299, ATTACHMENT A. ALSO FROM THE CURRENT OPERATING LICENSE, DATED JANUARY 23, 2019, NUMBER 9542, ATTACHMENT A.

SECTION, DETAIL, AND VIEW DESIGNATIONS



STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER
NO. 49160
LICENSED PROFESSIONAL ENGINEER
7/7/21

LEGEND

- EXISTING GROUND TOPOGRAPHY
- EXISTING GROUNDWATER TOPOGRAPHY
- PROPOSED GROUND TOPOGRAPHY
- EXISTING ACTIVE AREA
- EXISTING CLOSED AREA
- EXISTING VEGETATIVE COVER
- EXISTING CELL BOUNDARY
- EXISTING CULVERT
- EXISTING DITCH
- EXISTING DRAIN TILE
- EXISTING ELECTRIC LINE (BURIED)
- EXISTING ELECTRIC LINE (OVERHEAD)
- EXISTING FENCE
- EXISTING LEACHATE COLLECTION LINE (PERFORATED)
- EXISTING LEACHATE COLLECTION LINE (SOLID)
- EXISTING IRRIGATION LINE
- EXISTING IRRIGATION HEAD
- EXISTING RAP FORCEMAIN
- EXISTING ROAD
- EXISTING STORM LINE
- EXISTING TREE LINE
- EXISTING BOLLARD
- EXISTING ELECTRICAL TOWER
- EXISTING ELECTRICAL VAULT
- EXISTING HYDRANT
- EXISTING LEACHATE CLEANOUT
- EXISTING LEACHATE MANHOLE
- EXISTING POWER POLE
- EXISTING SANITARY MANHOLE
- EXISTING SIGN
- EXISTING STORMWATER CATCH BASIN
- EXISTING SUMP ACCESS STRUCTURE
- EXISTING MONITORING WELL
- EXISTING WATER WELL
- EXISTING DOMICILE/OUTBUILDING
- PROPOSED BREAKLINE
- PROPOSED CELL BOUNDARY
- PROPOSED DRAIN TILE
- PROPOSED LEACHATE COLLECTION LINE (PERFORATED)
- PROPOSED LEACHATE COLLECTION LINE (SOLID)
- PROPOSED ROAD
- PROPOSED SETBACK
- PROPOSED STORM WATER FLOW DIRECTION
- PROPERTY LINE
- PROPOSED VEGETATIVE COVER
- PROPOSED BOLLARD
- PROPOSED LEACHATE CLEANOUT
- PROPOSED LEACHATE MANHOLE

MATERIALS LEGEND

- GEOTEXTILE
- GEONET
- GEOMEMBRANE LINER
- GEOSYNTHETIC CLAY LINER (GCL)
- FLEXIBLE MEMBRANE LINER (FML)
- ASH FILL
- SAND DRAINAGE LAYER
- SAND EROSION LAYER
- VEGETATIVE SUPPORT LAYER

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

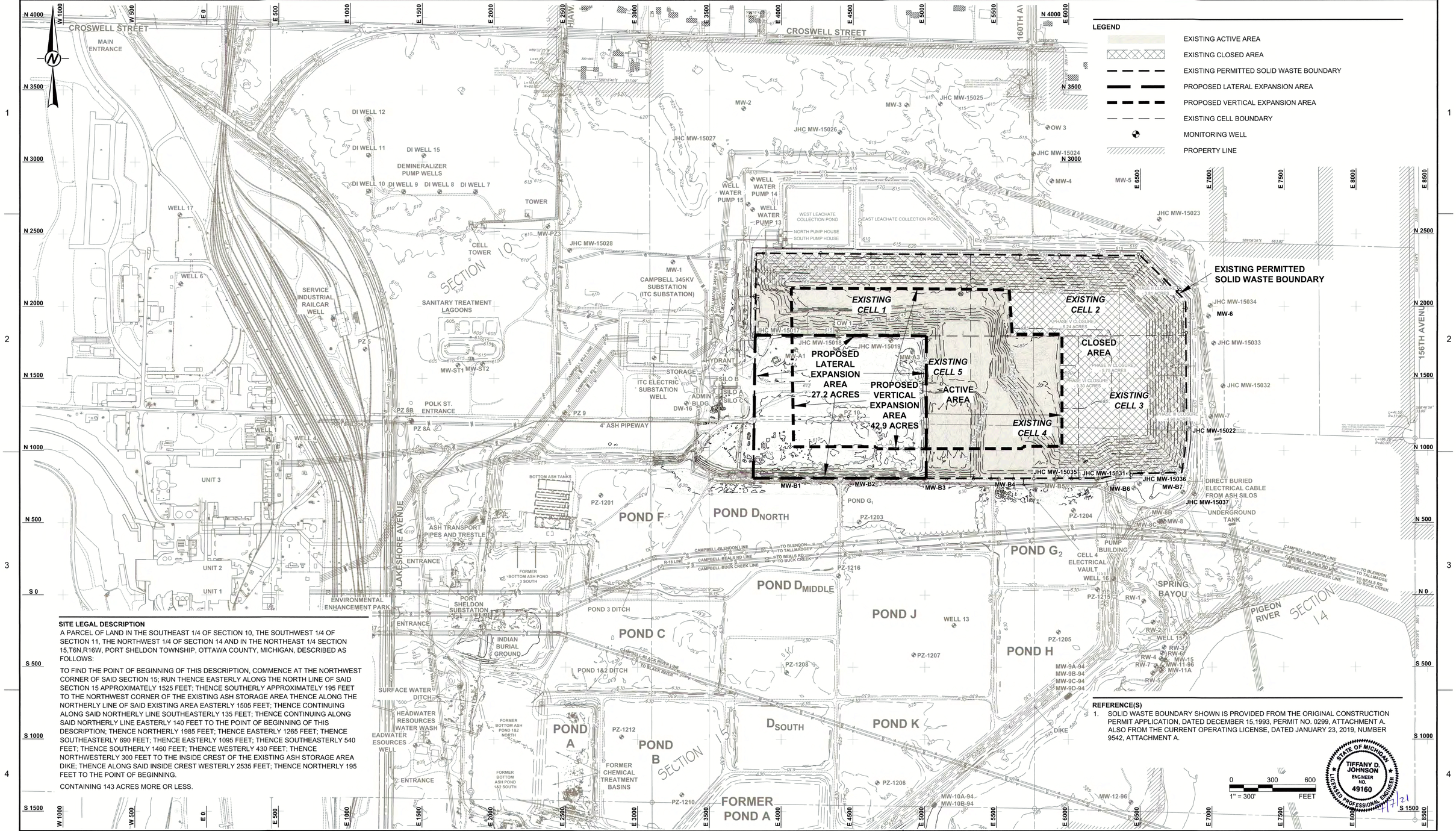
REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

SIGNATURE:
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No. 6201049160

Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

LEGEND, REFERENCES, AND GENERAL NOTES

SCALE: NONE
JOB: PT-02661
DRAWING NO.: ---
SHEET: 100-2
REV.: 0



SITE LEGAL DESCRIPTION

A PARCEL OF LAND IN THE SOUTHEAST 1/4 OF SECTION 10, THE SOUTHWEST 1/4 OF SECTION 11, THE NORTHWEST 1/4 OF SECTION 14 AND IN THE NORTHEAST 1/4 SECTION 15,T6N,R16W, PORT SHELDON TOWNSHIP, OTTAWA COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS:

TO FIND THE POINT OF BEGINNING OF THIS DESCRIPTION, COMMENCE AT THE NORTHWEST CORNER OF SAID SECTION 15; RUN THENCE EASTERLY ALONG THE NORTH LINE OF SAID SECTION 15 APPROXIMATELY 1525 FEET; THENCE SOUTHERLY APPROXIMATELY 195 FEET TO THE NORTHWEST CORNER OF THE EXISTING ASH STORAGE AREA THENCE ALONG THE NORTHERLY LINE OF SAID EXISTING AREA EASTERLY 1505 FEET; THENCE CONTINUING ALONG SAID NORTHERLY LINE SOUTHEASTERLY 135 FEET; THENCE CONTINUING ALONG SAID NORTHERLY LINE EASTERLY 140 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION; THENCE NORTHERLY 1985 FEET; THENCE EASTERLY 1265 FEET; THENCE SOUTHEASTERLY 690 FEET; THENCE EASTERLY 1095 FEET; THENCE SOUTHEASTERLY 540 FEET; THENCE SOUTHERLY 1460 FEET; THENCE WESTERLY 430 FEET; THENCE NORTHWESTERLY 300 FEET TO THE INSIDE CREST OF THE EXISTING ASH STORAGE AREA DIKE; THENCE ALONG SAID INSIDE CREST WESTERLY 2535 FEET; THENCE NORTHERLY 195 FEET TO THE POINT OF BEGINNING.

CONTAINING 143 ACRES MORE OR LESS.

REFERENCE(S)

1. SOLID WASTE BOUNDARY SHOWN IS PROVIDED FROM THE ORIGINAL CONSTRUCTION PERMIT APPLICATION, DATED DECEMBER 15,1993, PERMIT NO. 0299, ATTACHMENT A. ALSO FROM THE CURRENT OPERATING LICENSE, DATED JANUARY 23, 2019, NUMBER 9542, ATTACHMENT A.

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER
NO. 49160
LICENSED PROFESSIONAL ENGINEER
7/7/21

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

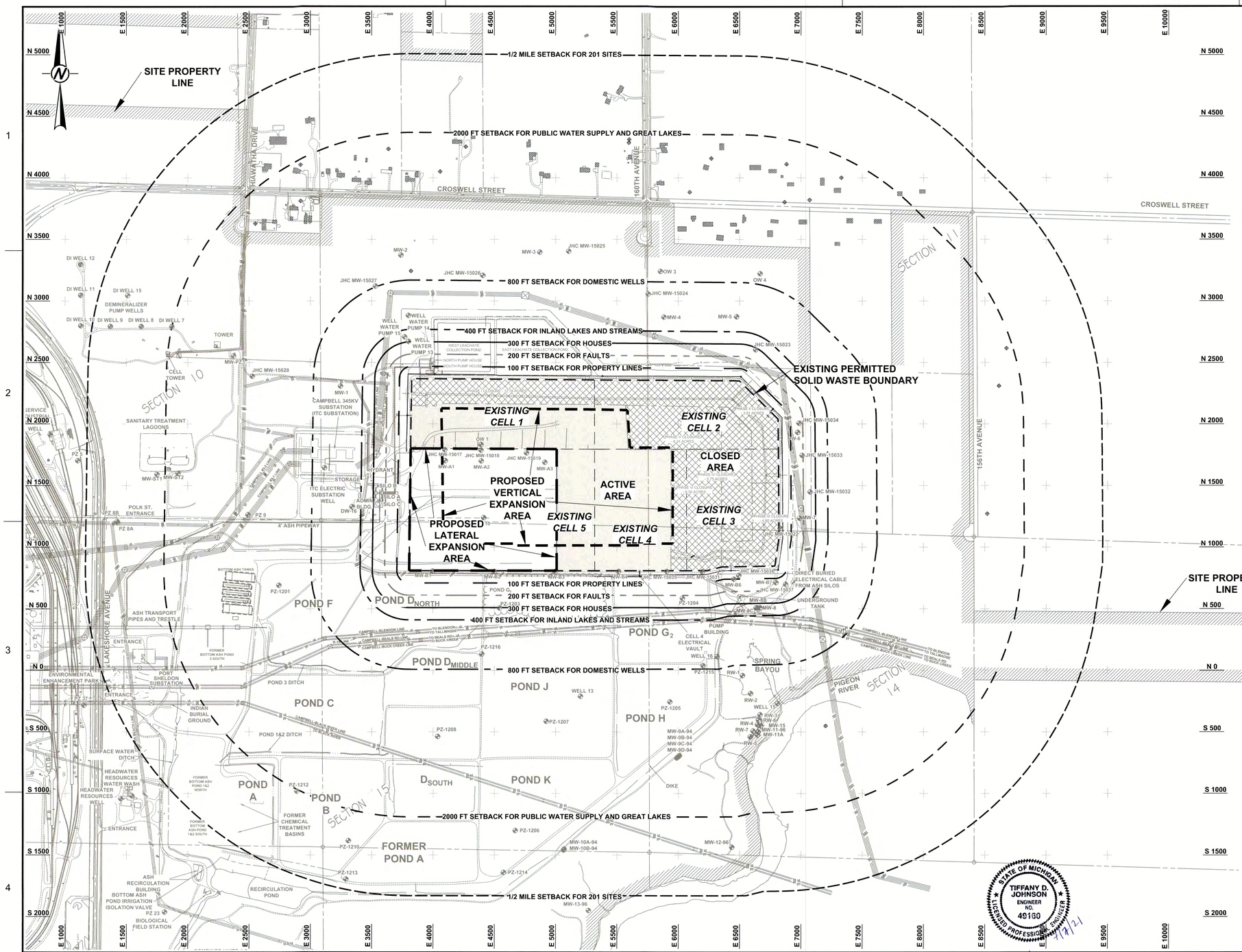
REV	DATE	DESCRIPTION	SF	DS	GD	TJ	GA
0	2021-06-30	SUBMITTED TO EGLE	DR	BY	CK	APP	CO

SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No.: 6201049160

Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

EXISTING PROPERTY SITE PLAN AND LEGAL DESCRIPTION

SCALE: 1" = 300'	DRAWING NO.	SHEET	REV.
JOB: PT-02661	---	200-1	0



LEGEND

- 100 FT. SETBACK FOR PROPERTY LINE
- 200 FT. SETBACK FOR SEISMIC IMPACT ZONES, AND FAULTS KNOWN TO HAVE HAD DISPLACEMENT IN HOLOCENE TIME
- 300 FT. SETBACK FOR HOUSES
- 400 FT. SETBACK FOR INLAND LAKES AND STREAMS
- 800 FT. SETBACK FOR DOMESTIC WATER WELLS (TYPE III & IIb) & DOMESTIC WELLS
- 2,000 FT. SETBACK FOR PUBLIC SUPPLY WELLS (TYPE IIa & I), AND GREAT LAKES
- 1/2 MILE SETBACK FOR THE MDEQ ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES.
- EXISTING ACTIVE AREA
- EXISTING CLOSED AREA
- EXISTING PERMITTED SOLID WASTE BOUNDARY
- PROPOSED LATERAL EXPANSION AREA
- PROPOSED VERTICAL EXPANSION AREA
- EXISTING CELL BOUNDARY
- PROPERTY LINE
- xxxxxxxxxxx WATER WELL LOCATION
- MONITORING WELL
- EXISTING DOMICILE/OUTBUILDING

NOTE(S)

1. REFER TO SECTION B - ENVIRONMENTAL ASSESSMENT OF THIS CPA FOR MORE INFORMATION ON SETBACK DEMONSTRATIONS.
2. THE EXPANSION IS NOT LOCATED WITHIN FLOODPLAINS, WETLANDS, HISTORICAL OR CULTURALLY SENSITIVE AREAS, OR ENDANGERED SPECIES AREAS.
3. THERE ARE NO EGLE ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES LOCATED WITHIN THE EXTENTS OF THIS DRAWING.
4. THE EXPANSION IS NOT LOCATED WITHIN 10,000 FEET OF AN AIRPORT.
5. SEE SHEET 100-2 FOR FULL LEGEND.

REFERENCE(S)

1. SOLID WASTE BOUNDARY SHOWN IS PROVIDED FROM THE ORIGINAL CONSTRUCTION PERMIT APPLICATION, DATED DECEMBER 15,1993, PERMIT NO. 0299, ATTACHMENT A. ALSO FROM THE CURRENT OPERATING LICENSE, DATED JANUARY 23, 2019, NUMBER 9542, ATTACHMENT A.

0 400 800
1" = 400' FEET

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER
NO. 49130
LICENSED PROFESSIONAL ENGINEER
7/9/21

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
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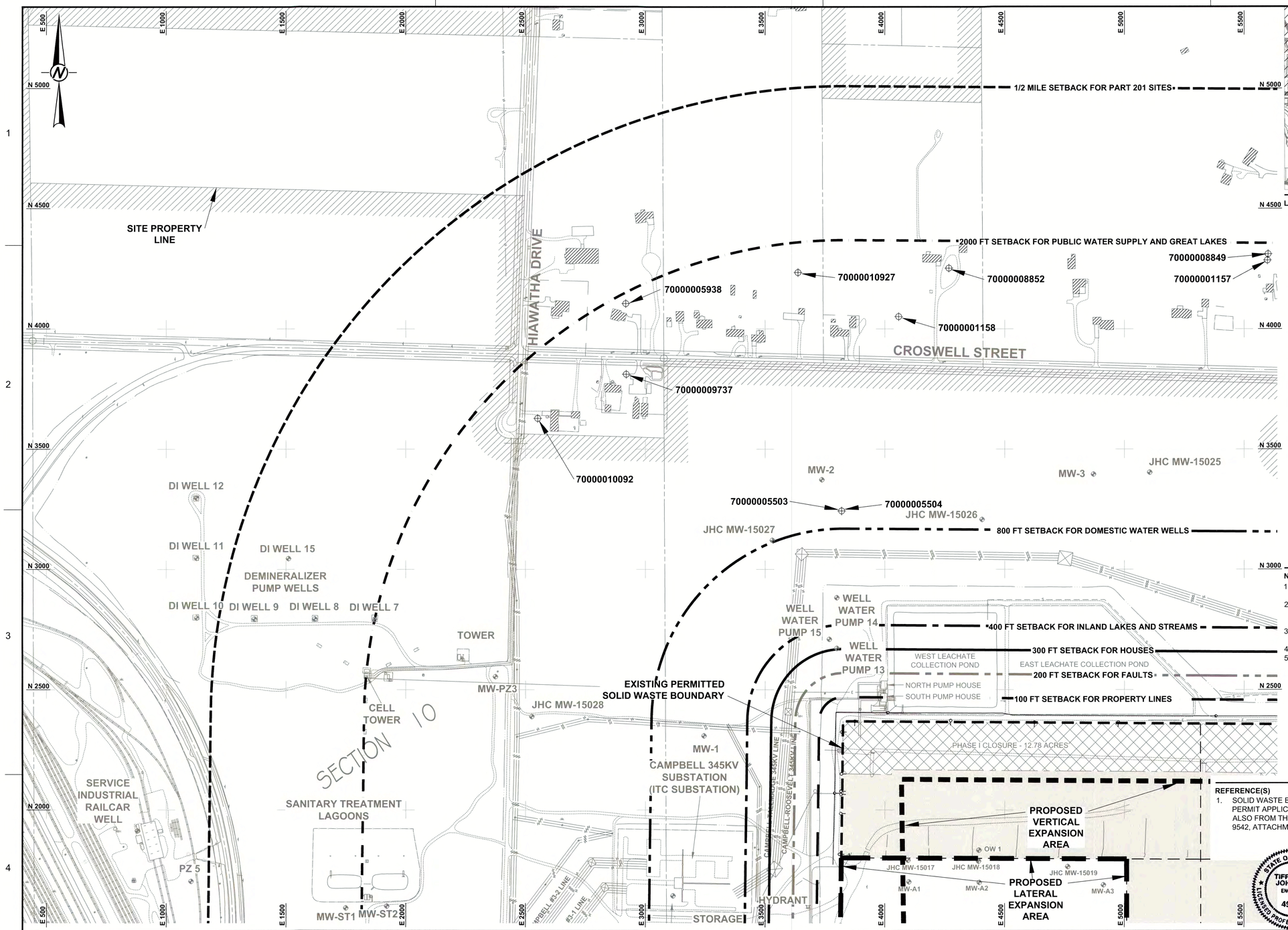
REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO

SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No. 6201049160

Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

SETBACK REQUIREMENTS - SHEET 1

SCALE	DRAWING NO.	SHEET	REV.
1" = 400'	---	200-2	0
JOB: PT-02661			



LEGEND

- 100 FT. SETBACK FOR PROPERTY LINE
- 200 FT. SETBACK FOR SEISMIC IMPACT ZONES, AND FAULTS KNOWN TO HAVE HAD DISPLACEMENT IN HOLOCENE TIME
- 300 FT. SETBACK FOR HOUSES
- 400 FT. SETBACK FOR INLAND LAKES AND STREAMS
- 800 FT. SETBACK FOR DOMESTIC WATER WELLS (TYPE III & IIb) & DOMESTIC WELLS
- 2,000 FT. SETBACK FOR PUBLIC SUPPLY WELLS (TYPE IIa & I), AND GREAT LAKES
- 1/2 MILE SETBACK FOR THE MDEQ ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES.
- EXISTING ACTIVE AREA
- EXISTING CLOSED AREA
- EXISTING PERMITTED SOLID WASTE BOUNDARY
- PROPOSED LATERAL EXPANSION AREA
- PROPOSED VERTICAL EXPANSION AREA
- EXISTING CELL BOUNDARY
- PROPERTY LINE
- xxxxxxxxxxxx WATER WELL LOCATION
- MONITORING WELL
- EXISTING DOMICILE/OUTBUILDING

NOTE(S)

1. REFER TO SECTION B - ENVIRONMENTAL ASSESSMENT OF THIS CPA FOR MORE INFORMATION ON SETBACK DEMONSTRATIONS.
2. THE EXPANSION IS NOT LOCATED WITHIN FLOODPLAINS, WETLANDS, HISTORICAL OR CULTURALLY SENSITIVE AREAS, OR ENDANGERED SPECIES AREAS.
3. THERE ARE NO EGLE ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES LOCATED WITHIN THE EXTENTS OF THIS DRAWING.
4. THE EXPANSION IS NOT LOCATED WITHIN 10,000 FEET OF AN AIRPORT.
5. SEE SHEET 100-2 FOR FULL LEGEND.

REFERENCE(S)

1. SOLID WASTE BOUNDARY SHOWN IS PROVIDED FROM THE ORIGINAL CONSTRUCTION PERMIT APPLICATION, DATED DECEMBER 15,1993, PERMIT NO. 0299, ATTACHMENT A. ALSO FROM THE CURRENT OPERATING LICENSE, DATED JANUARY 23, 2019, NUMBER 9542, ATTACHMENT A.

STATE OF MICHIGAN — TIFFANY D. JOHNSON — ENGINEER NO. 49160 — LICENSED PROFESSIONAL ENGINEER — 7/7/21

0 200 400
1" = 200' FEET

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

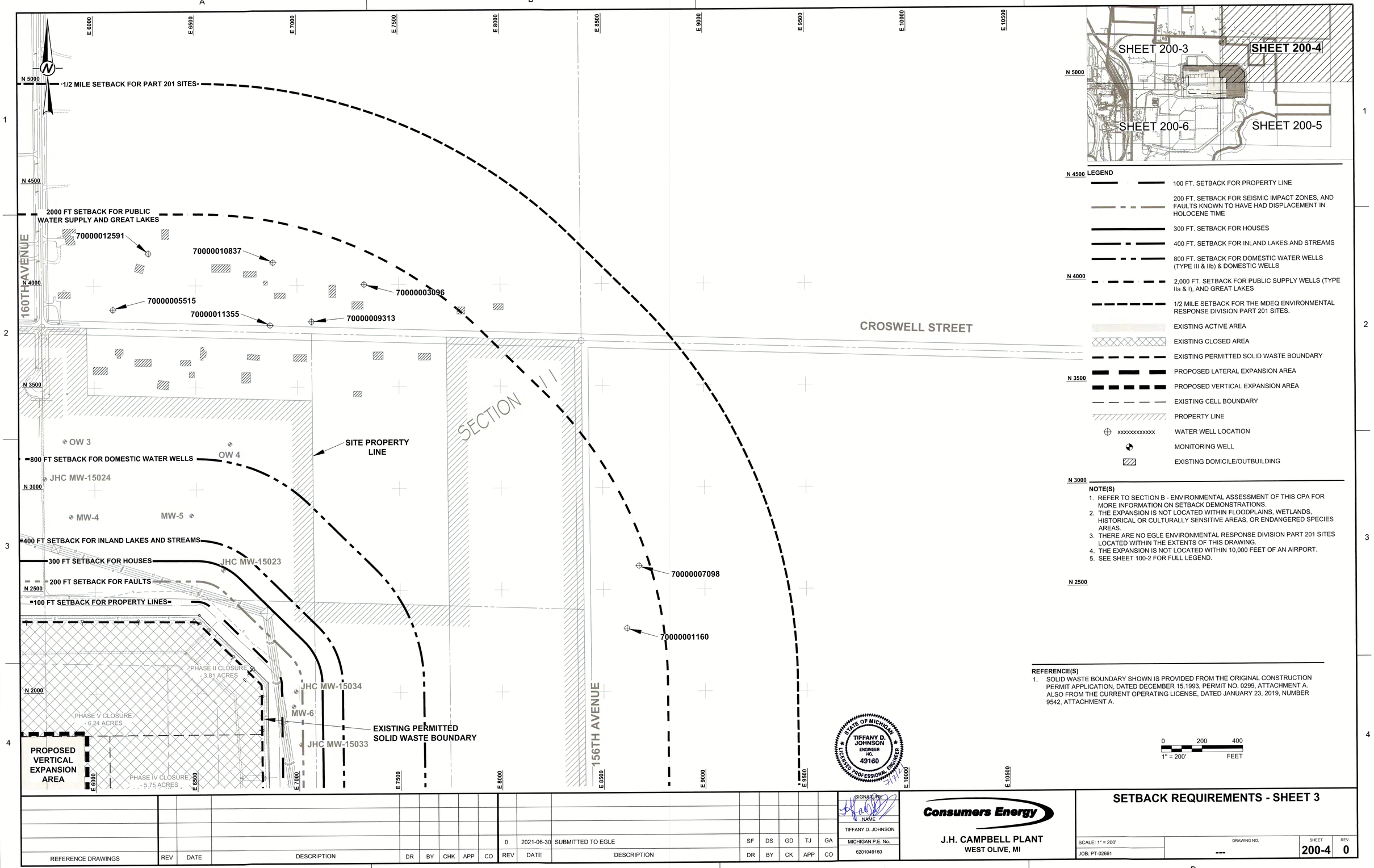
REV	DATE	DESCRIPTION	SF	DS	GD	TJ	GA
0	2021-06-30	SUBMITTED TO EGLE	DR	BY	CK	APP	CO

SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No.: 6201049160

Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

SETBACK REQUIREMENTS - SHEET 2

SCALE: 1" = 200'
JOB: PT-02661
DRAWING NO.: ---
SHEET: 200-3
REV.: 0



LEGEND

- 100 FT. SETBACK FOR PROPERTY LINE
- 200 FT. SETBACK FOR SEISMIC IMPACT ZONES, AND FAULTS KNOWN TO HAVE HAD DISPLACEMENT IN HOLOCENE TIME
- 300 FT. SETBACK FOR HOUSES
- 400 FT. SETBACK FOR INLAND LAKES AND STREAMS
- 800 FT. SETBACK FOR DOMESTIC WATER WELLS (TYPE III & IIb) & DOMESTIC WELLS
- 2,000 FT. SETBACK FOR PUBLIC SUPPLY WELLS (TYPE IIa & I), AND GREAT LAKES
- 1/2 MILE SETBACK FOR THE MDEQ ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES.
- EXISTING ACTIVE AREA
- EXISTING CLOSED AREA
- EXISTING PERMITTED SOLID WASTE BOUNDARY
- PROPOSED LATERAL EXPANSION AREA
- PROPOSED VERTICAL EXPANSION AREA
- EXISTING CELL BOUNDARY
- PROPERTY LINE
- xxxxxxxxxxxx WATER WELL LOCATION
- MONITORING WELL
- EXISTING DOMICILE/OUTBUILDING

NOTE(S)

1. REFER TO SECTION B - ENVIRONMENTAL ASSESSMENT OF THIS CPA FOR MORE INFORMATION ON SETBACK DEMONSTRATIONS.
2. THE EXPANSION IS NOT LOCATED WITHIN FLOODPLAINS, WETLANDS, HISTORICAL OR CULTURALLY SENSITIVE AREAS, OR ENDANGERED SPECIES AREAS.
3. THERE ARE NO EGLE ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES LOCATED WITHIN THE EXTENTS OF THIS DRAWING.
4. THE EXPANSION IS NOT LOCATED WITHIN 10,000 FEET OF AN AIRPORT.
5. SEE SHEET 100-2 FOR FULL LEGEND.

REFERENCE(S)

1. SOLID WASTE BOUNDARY SHOWN IS PROVIDED FROM THE ORIGINAL CONSTRUCTION PERMIT APPLICATION, DATED DECEMBER 15,1993, PERMIT NO. 0299, ATTACHMENT A. ALSO FROM THE CURRENT OPERATING LICENSE, DATED JANUARY 23, 2019, NUMBER 9542, ATTACHMENT A.

0 200 400
1" = 200' FEET

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER
NO. 49160
LICENSED PROFESSIONAL ENGINEER

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
	0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

SIGNATURE
NAME
TIFFANY D. JOHNSON
MICHIGAN P.E. No.
6201049160

Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

SETBACK REQUIREMENTS - SHEET 3

SCALE: 1" = 200'
JOB: PT-02661
DRAWING NO. ---
SHEET 200-4
REV. 0

LEGEND

- 100 FT. SETBACK FOR PROPERTY LINE
- 200 FT. SETBACK FOR SEISMIC IMPACT ZONES, AND FAULTS KNOWN TO HAVE HAD DISPLACEMENT IN HOLOCENE TIME
- 300 FT. SETBACK FOR HOUSES
- 400 FT. SETBACK FOR INLAND LAKES AND STREAMS
- 800 FT. SETBACK FOR DOMESTIC WATER WELLS (TYPE III & IIb) & DOMESTIC WELLS
- 2,000 FT. SETBACK FOR PUBLIC SUPPLY WELLS (TYPE IIa & I), AND GREAT LAKES
- 1/2 MILE SETBACK FOR THE MDEQ ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES.
- EXISTING ACTIVE AREA
- EXISTING CLOSED AREA
- EXISTING PERMITTED SOLID WASTE BOUNDARY
- PROPOSED LATERAL EXPANSION AREA
- PROPOSED VERTICAL EXPANSION AREA
- EXISTING CELL BOUNDARY
- PROPERTY LINE
- xxxxxxxxxxx — WATER WELL LOCATION
- MONITORING WELL
- EXISTING DOMICILE/OUTBUILDING

NOTE(S)

1. REFER TO SECTION B - ENVIRONMENTAL ASSESSMENT OF THIS CPA FOR MORE INFORMATION ON SETBACK DEMONSTRATIONS.
2. THE EXPANSION IS NOT LOCATED WITHIN FLOODPLAINS, WETLANDS, HISTORICAL OR CULTURALLY SENSITIVE AREAS, OR ENDANGERED SPECIES AREAS.
3. THERE ARE NO EGLE ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES LOCATED WITHIN THE EXTENTS OF THIS DRAWING.
4. THE EXPANSION IS NOT LOCATED WITHIN 10,000 FEET OF AN AIRPORT.
5. SEE SHEET 100-2 FOR FULL LEGEND.

REFERENCE(S)

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0 200 400
1" = 200' FEET

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ENGINEER
NO. 49160
LICENSED PROFESSIONAL ENGINEER

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

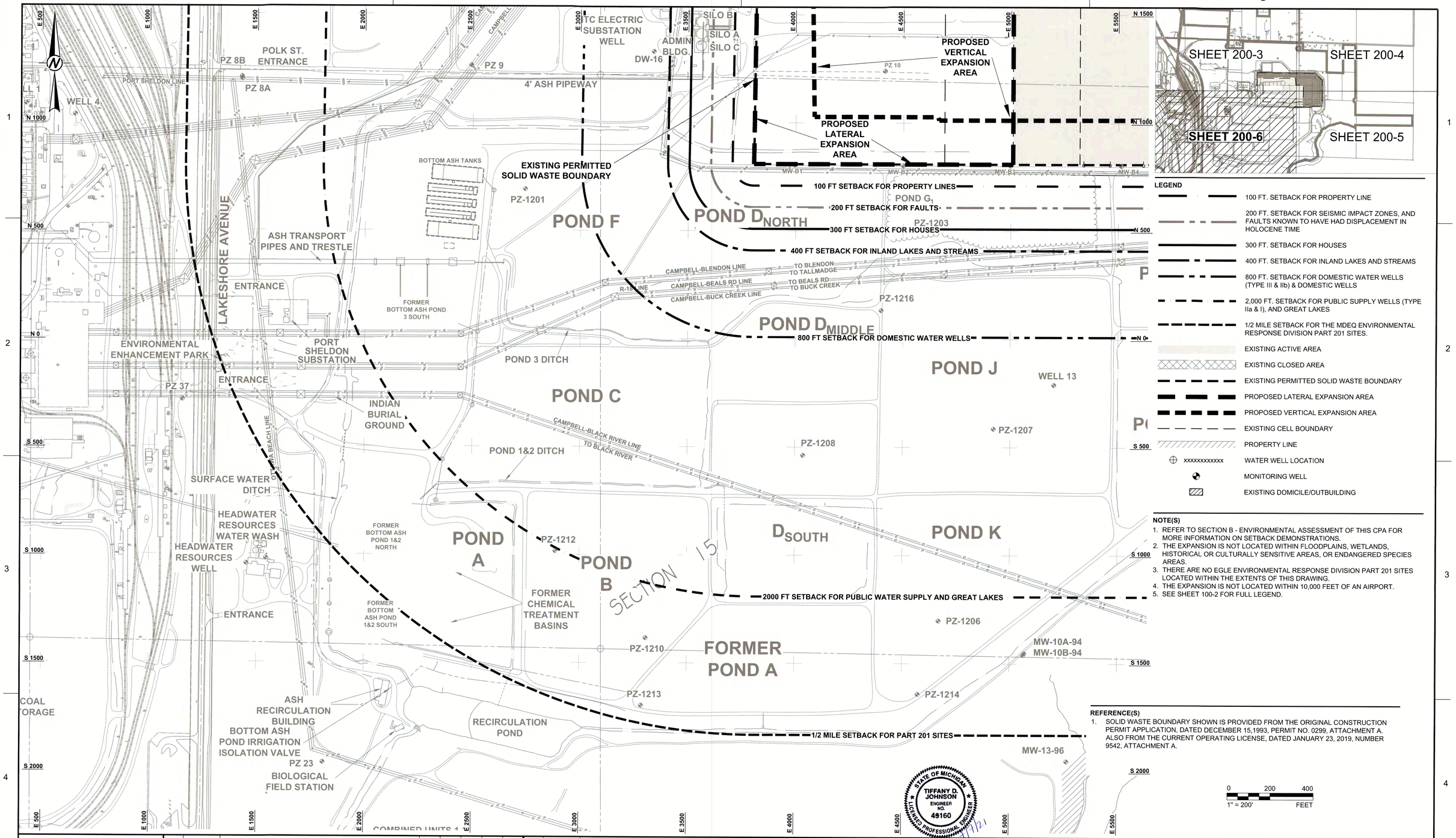
REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No. 6201049160

Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

SETBACK REQUIREMENTS - SHEET 4

SCALE: 1" = 200'	DRAWING NO.	SHEET	REV.
JOB: PT-02661	---	200-5	0



LEGEND

- 100 FT. SETBACK FOR PROPERTY LINE
- 200 FT. SETBACK FOR SEISMIC IMPACT ZONES, AND FAULTS KNOWN TO HAVE HAD DISPLACEMENT IN HOLOCENE TIME
- 300 FT. SETBACK FOR HOUSES
- 400 FT. SETBACK FOR INLAND LAKES AND STREAMS
- 800 FT. SETBACK FOR DOMESTIC WATER WELLS (TYPE III & IIb) & DOMESTIC WELLS
- 2,000 FT. SETBACK FOR PUBLIC SUPPLY WELLS (TYPE IIa & I), AND GREAT LAKES
- 1/2 MILE SETBACK FOR THE MDEQ ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES.
- EXISTING ACTIVE AREA
- EXISTING CLOSED AREA
- EXISTING PERMITTED SOLID WASTE BOUNDARY
- PROPOSED LATERAL EXPANSION AREA
- PROPOSED VERTICAL EXPANSION AREA
- EXISTING CELL BOUNDARY
- PROPERTY LINE
- xxxxxxxxxxxx WATER WELL LOCATION
- MONITORING WELL
- EXISTING DOMICILE/OUTBUILDING

NOTE(S)

1. REFER TO SECTION B - ENVIRONMENTAL ASSESSMENT OF THIS CPA FOR MORE INFORMATION ON SETBACK DEMONSTRATIONS.
2. THE EXPANSION IS NOT LOCATED WITHIN FLOODPLAINS, WETLANDS, HISTORICAL OR CULTURALLY SENSITIVE AREAS, OR ENDANGERED SPECIES AREAS.
3. THERE ARE NO EGLE ENVIRONMENTAL RESPONSE DIVISION PART 201 SITES LOCATED WITHIN THE EXTENTS OF THIS DRAWING.
4. THE EXPANSION IS NOT LOCATED WITHIN 10,000 FEET OF AN AIRPORT.
5. SEE SHEET 100-2 FOR FULL LEGEND.

REFERENCE(S)

1. SOLID WASTE BOUNDARY SHOWN IS PROVIDED FROM THE ORIGINAL CONSTRUCTION PERMIT APPLICATION, DATED DECEMBER 15,1993, PERMIT NO. 0299, ATTACHMENT A. ALSO FROM THE CURRENT OPERATING LICENSE, DATED JANUARY 23, 2019, NUMBER 9542, ATTACHMENT A.

0 200 400
1" = 200' FEET

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER NO. 49160
LICENSED PROFESSIONAL ENGINEER
9/17/21

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	SF	DS	GD	TJ	GA
0	2021-06-30	SUBMITTED TO EGLE	DR	BY	CK	APP	CO

SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No.: 6201049160

Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

SETBACK REQUIREMENTS - SHEET 5

SCALE: 1" = 200'
JOB: PT-02661
DRAWING NO.: ---
SHEET: 200-6
REV.: 0

EXISTING WEST LEACHATE COLLECTION POND

EXISTING EAST LEACHATE COLLECTION POND

EXISTING PERMITTED SOLID WASTE BOUNDARY

EXISTING CELL LEACHATE COLLECTION PIPES AND CLEANOUTS (TYP.)

CLOSED AREAS

TEMPORARY STORMWATER DOWNLETS WITHIN CONSTRUCTION AREA TO BE REMOVED DURING CCR PLACEMENT (TYP.)

EXISTING CELL 1

EXISTING CELL 2

EXISTING 12 INCH DIA. SDR 32.5 PE LEACHATE TRANSFER PIPE

MONITORING WELLS WITHIN CONSTRUCTION AREA TO BE ABANDONED PRIOR TO CELL CONSTRUCTION (TYP). DOWNGRADIENT WELLS TO BE INSTALLED PRIOR TO WASTE PLACEMENT IN NEW CELLS.

PROPOSED VERTICAL EXPANSION AREA 42.9 ACRES

PROPOSED LATERAL EXPANSION AREA 27.2 ACRES

EXISTING CELL 5

EXISTING CELL 4

EXISTING CELL 3

PROPOSED 12 INCH DIA. GRAVITY LEACHATE TRANSFER PIPE

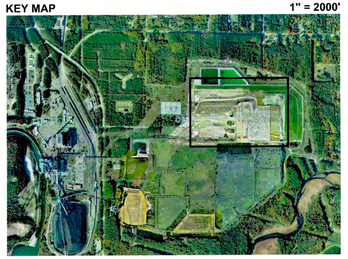
CAUTION OVERHEAD WIRES

PROPOSED 12 INCH DIA. GRAVITY LEACHATE TRANSFER PIPE

EXISTING 12 INCH DIA. SDR 32.5 PE LEACHATE TRANSFER PIPE

JHC MW-15017
JHC MW-15018
JHC MW-15019
JHC MW-15022
JHC MW-15035
JHC MW-15037
JHC MW-15031
MW-A1
MW-A2
MW-A3
MW-B1
MW-B2
MW-B3
MW-B4
MW-B7
MW-6
OW 1
PZ 10
MH

KEY MAP 1" = 2000'



REFERENCE(S)

1. SOLID WASTE BOUNDARY SHOWN IS PROVIDED FROM THE ORIGINAL CONSTRUCTION PERMIT APPLICATION, DATED DECEMBER 15,1993, PERMIT NO. 0299, ATTACHMENT A. ALSO FROM THE CURRENT OPERATING LICENSE, DATED JANUARY 23, 2019, NUMBER 9542, ATTACHMENT A.

0 100 200
1" = 100' FEET

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

STATE OF MICHIGAN — TIFFANY D. JOHNSON — ENGINEER NO. 49160 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

NAME: TIFFANY D. JOHNSON

MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

UTILITY PLAN

SCALE: 1" = 100'

JOB: PT-02661

DRAWING NO.: ---

SHEET: 200-7

REV.: 0

EXISTING WEST LEACHATE COLLECTION POND

EXISTING EAST LEACHATE COLLECTION POND

EXISTING PERMITTED SOLID WASTE BOUNDARY

CLOSED AREAS

EXISTING CELL 1

EXISTING CELL 2

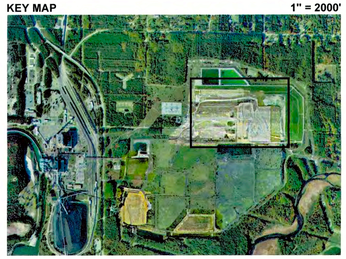
EXISTING CELL 3

EXISTING CELL 4

PROPOSED LATERAL EXPANSION AREA

ACTIVE AREAS NOT AT FINAL GRADE

KEY MAP 1" = 2000'



JHC MW-15017
JHC MW-15018
JHC MW-15019
JHC MW-15022
JHC MW-15035
JHC MW-15037
MW-A1
MW-A2
MW-A3
MW-B1
MW-B2
MW-B3
MW-B4
MW-B7
MW-6
OW 1
PZ 10

REFERENCE(S)

1. GROUNDWATER INFORMATION DERIVED FROM "JHC WATER LEVEL MAX 2017 - 2020_BOTH DATUMS" DATED JULY 17, 2020 PROVIDED BY CONSUMERS ENERGY AND PREPARED BY TRC ENVIRONMENTAL. THESE CONTOURS ARE SHOWN ON THESE DRAWINGS AND ARE THE HISTORICALLY HIGH GROUNDWATER LEVELS.
2. SOLID WASTE BOUNDARY SHOWN IS PROVIDED FROM THE ORIGINAL CONSTRUCTION PERMIT APPLICATION, DATED DECEMBER 15,1993, PERMIT NO. 0299, ATTACHMENT A. ALSO FROM THE CURRENT OPERATING LICENSE, DATED JANUARY 23, 2019, NUMBER 9542, ATTACHMENT A.

0 100 200
1" = 100' FEET

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER NO. 49160
LICENSED PROFESSIONAL ENGINEER

7/1/21

SIGNATURE

NAME: TIFFANY D. JOHNSON

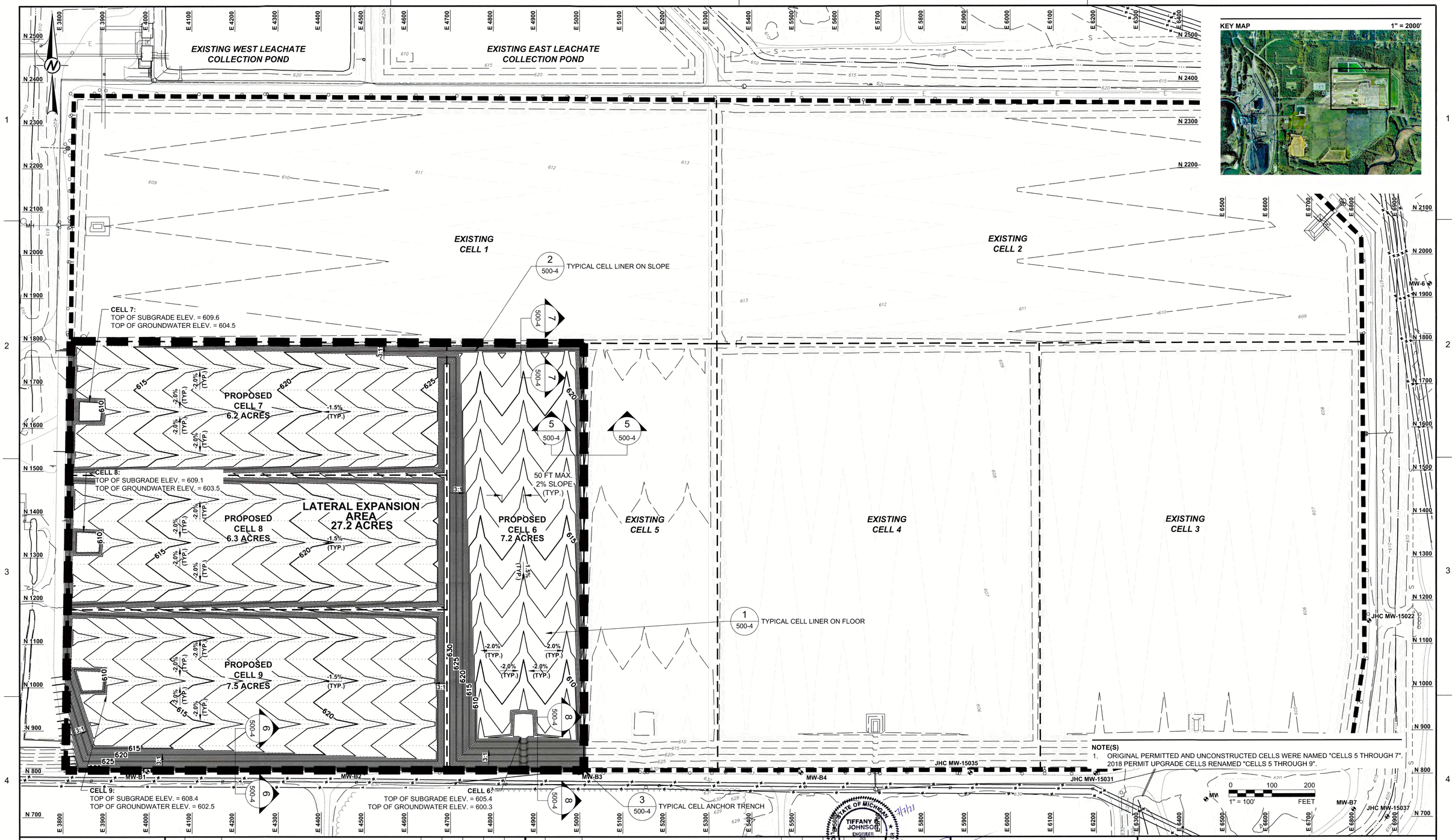
MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

HISTORICALLY HIGH GROUNDWATER POTENTIOMETRIC ELEVATION MAP

SCALE	DRAWING NO.	SHEET	REV.
SCALE: 1" = 100'	---	300-1	0
JOB: PT-02661			



NOTE(S)

1. ORIGINAL PERMITTED AND UNCONSTRUCTED CELLS WERE NAMED "CELLS 5 THROUGH 7". 2018 PERMIT UPGRADE CELLS RENAMED "CELLS 5 THROUGH 9".

REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

REFERENCE DRAWINGS

STATE OF MICHIGAN — TIFFANY JOHNSON — ENGINEER — NO. 43150 — LICENSED PROFESSIONAL — 7/7/21

SIGNATURE

NAME: TIFFANY D. JOHNSON

MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

TOP OF SUBGRADE PLAN

SCALE: 1" = 100'

JOB: PT-02661

DRAWING NO.: ---

SHEET: 400-1

REV.: 0

EXISTING WEST LEACHATE COLLECTION POND

EXISTING EAST LEACHATE COLLECTION POND

EXISTING CELL 1

EXISTING CELL 2

EXISTING CELL 3

EXISTING CELL 4

EXISTING CELL 5

PROPOSED CELL 7 6.2 ACRES

PROPOSED CELL 8 6.3 ACRES

PROPOSED CELL 9 7.5 ACRES

PROPOSED CELL 6 7.2 ACRES

PROPOSED 8 INCH DIA. PERFORATED SDR 11 HDPE LEACHATE COLLECTION PIPE (TYP.)

EXISTING 8 INCH DIA. PERFORATED LEACHATE COLLECTION PIPE (TYP.)

PROPOSED 18 INCH DIA. SDR 17 HDPE LEACHATE COLLECTION SUMP SIDESLOPE RISER, PERFORATED IN SUMP (TYP.)

PROPOSED 8 INCH DIA. SOLID SDR 11 HDPE LEACHATE CLEANOUT PIPE (TYP.)

2 / 500-7 TYPICAL PERFORATED PIPE DETAIL

6 / 500-7 TYPICAL OVERLINER DETAIL

1 / 500-5 TYPICAL LEACHATE COLLECTION SUMP

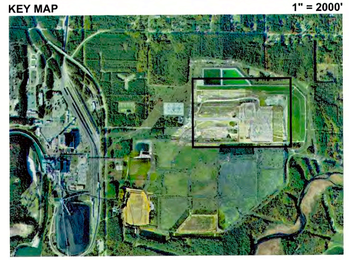
3 / 500-7 TYPICAL SECTION THROUGH SIDESLOPE CLEANOUT

4 / 500-4 TYPICAL WARNING POST

1 / 600-3 TYPICAL LEACHATE TRANSFER SYSTEM

MW-B1 MW-B2 MW-B3 MW-B4 MW-6 MW-B7 JHC MW-15022 JHC MW-15035 JHC MW-15031 JHC MW-15037

KEY MAP 1" = 2000'



0 100 200
1" = 100' FEET

NOTE(S)

1. ORIGINAL PERMITTED AND UNCONSTRUCTED CELLS WERE NAMED "CELLS 5 THROUGH 7". 2018 PERMIT UPGRADE CELLS RENAMED "CELLS 5 THROUGH 9".
2. TOP OF SAND NOT SHOWN FOR CLARITY.
3. SEE SHEET 600-1 FOR LEACHATE TRANSMISSION OUTSIDE OF LANDFILL LIMITS.

STATE OF MICHIGAN TIFFANY JOHNSON ENGINEER 49160 LICENSED PROFESSIONAL

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
	0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

SIGNATURE

NAME: TIFFANY D. JOHNSON

MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

LEACHATE COLLECTION SYSTEM PLAN

SCALE: 1" = 100'

JOB: PT-02661

DRAWING NO. ---

SHEET 400-2

REV. 0

EXISTING WEST LEACHATE COLLECTION POND

EXISTING EAST LEACHATE COLLECTION POND

EXISTING CELL 1

EXISTING CELL 2

EXISTING CELL 3

EXISTING CELL 4

EXISTING CELL 5

VERTICAL EXPANSION AREA 42.9 ACRES

PROPOSED CELL 6 7.2 ACRES

PROPOSED CELL 7 6.2 ACRES

PROPOSED CELL 8 6.3 ACRES

PROPOSED CELL 9 7.5 ACRES

TYPICAL FINAL COVER, SEE DETAIL 1/500-8

TYPICAL DRAIN TILE IN EXISTING FINAL COVER DETAIL, SEE DETAIL 5/500-8

KEY MAP 1" = 2000'



MW-B1 MW-B2 MW-B3 MW-B4 MW-B7

JHC MW-15022 JHC MW-15031 JHC MW-15035 JHC MW-15037

MW-6

NOTE(S)

1. ORIGINAL PERMITTED AND UNCONSTRUCTED CELLS WERE NAMED "CELLS 5 THROUGH 7". 2018 PERMIT UPGRADE CELLS RENAMED "CELLS 5 THROUGH 9".
2. FINAL COVER GRADES MAY VARY FROM WHAT IS SHOWN BASED ON OPERATIONAL NEEDS AND/OR GENERATION FACILITY CLOSURE DATES. REVISED CLOSURE GRADES, IF NEEDED, WILL BE SUBMITTED TO EGLE PRIOR TO CLOSURE FOR APPROVAL.

0 100 200 FEET
1" = 100'

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	SF	DS	GD	TJ	GA
0	2021-06-30	SUBMITTED TO EGLE	DR	BY	CK	APP	CO

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER NO. 49160
LICENSED PROFESSIONAL ENGINEER

SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No. 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

TOP OF FINAL COVER PLAN

SCALE: 1" = 100'
JOB: PT-02661
DRAWING NO. ---
SHEET 400-3
REV. 0

EXISTING WEST LEACHATE COLLECTION POND

EXISTING EAST LEACHATE COLLECTION POND

EXISTING CELL 1

EXISTING CELL 2

EXISTING CELL 3

EXISTING CELL 4

EXISTING CELL 5

PROPOSED CELL 7 6.2 ACRES

PROPOSED CELL 8 6.3 ACRES

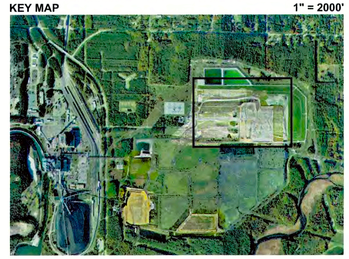
PROPOSED CELL 6 7.2 ACRES

PROPOSED CELL 9 7.5 ACRES

EXISTING HAUL ROAD

MW-B1 MW-B2 MW-B3 MW-B4 MW-B7 MW-6 JHC MW-15022 JHC MW-15031 JHC MW-15035 JHC MW-15037

KEY MAP 1" = 2000'



NOTES

1. OPERATIONAL SLOPES SHOWN ON THIS FILL PROGRESSION PLAN SHEET REPRESENT ONE POSSIBLE OPTION FOR OPERATIONAL GRADING. OPERATIONAL GRADES AND TOE OF SLOPES MAY BE CHANGED AT THE OWNER'S DISCRETION BASED UPON STORMWATER MANAGEMENT NEEDS, FILLINGS RATES, OR SAFETY.
2. OPERATIONAL GRADES ON THIS SHEET REPRESENT THE MAXIMUM FILLING SLOPES FOR EACH PROPOSED CELL.
3. THE OWNER MAY CHOOSE TO IMPLEMENT ADDITIONAL LEACHATE AND STORMWATER MANAGEMENT FEATURES, SUCH AS CHIMNEY OR TOE DRAINS, BASED ON OPERATIONAL NEEDS, WITH PRIOR APPROVAL FROM EGLE.

0 100 200
1" = 100' FEET

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
	0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

TIFFANY D. JOHNSON ENGINEER NO. 49160 STATE OF MICHIGAN LICENSED PROFESSIONAL ENGINEER

SIGNATURE

NAME: TIFFANY D. JOHNSON

MICHIGAN P.E. No. 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

FILLING PROGRESSION PLAN - SHEET 1

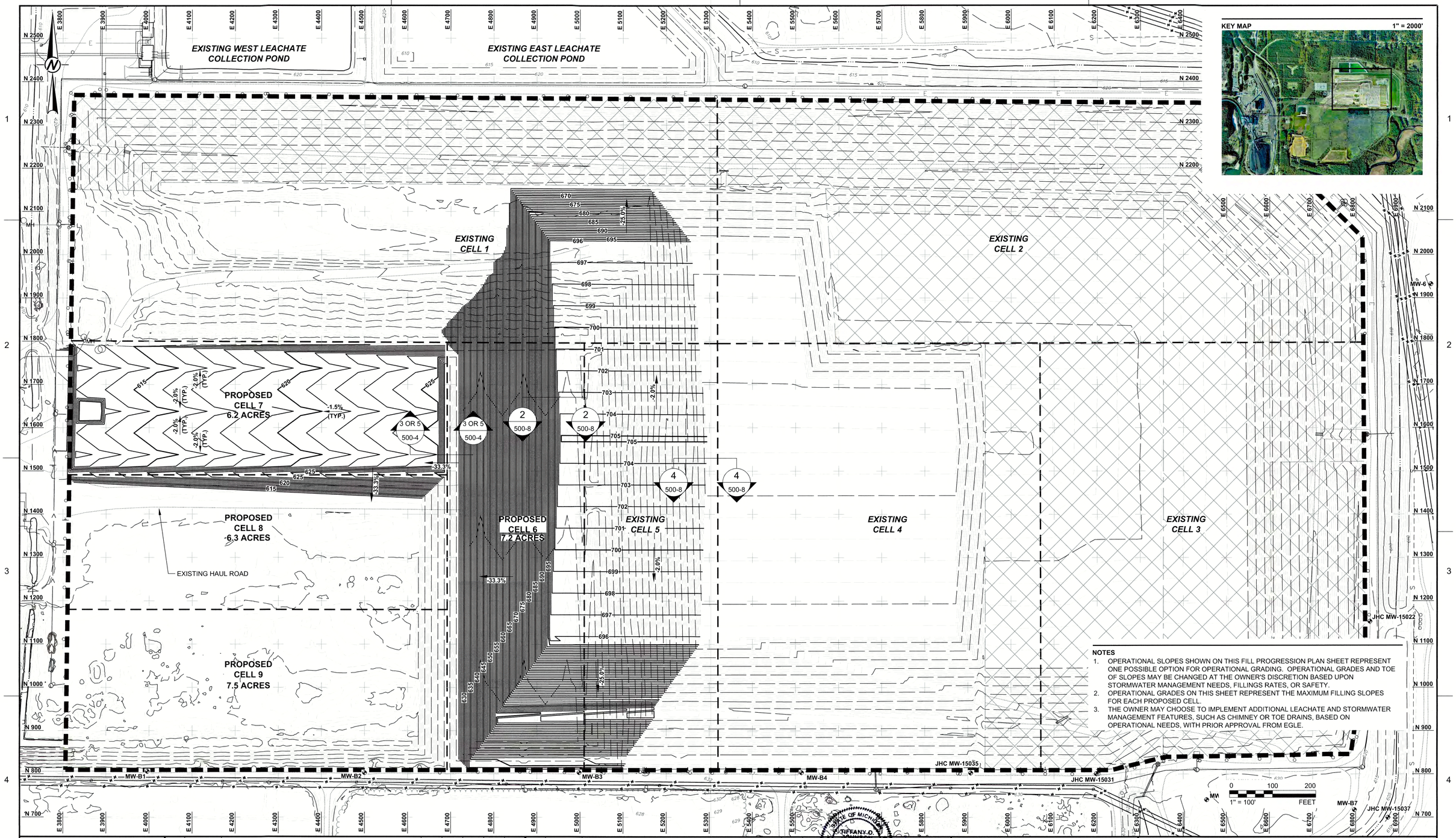
SCALE: 1" = 100'

JOB: PT-02661

DRAWING NO. ---

SHEET 400-4

REV. 0



REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	SF	DS	GD	TJ	GA
0	2021-06-30	SUBMITTED TO EGLE	DR	BY	CK	APP	CO

STATE OF MICHIGAN
TIFFANY D JOHNSON
ENGINEER
No. 49160
REGISTERED PROFESSIONAL ENGINEER
7/7/21

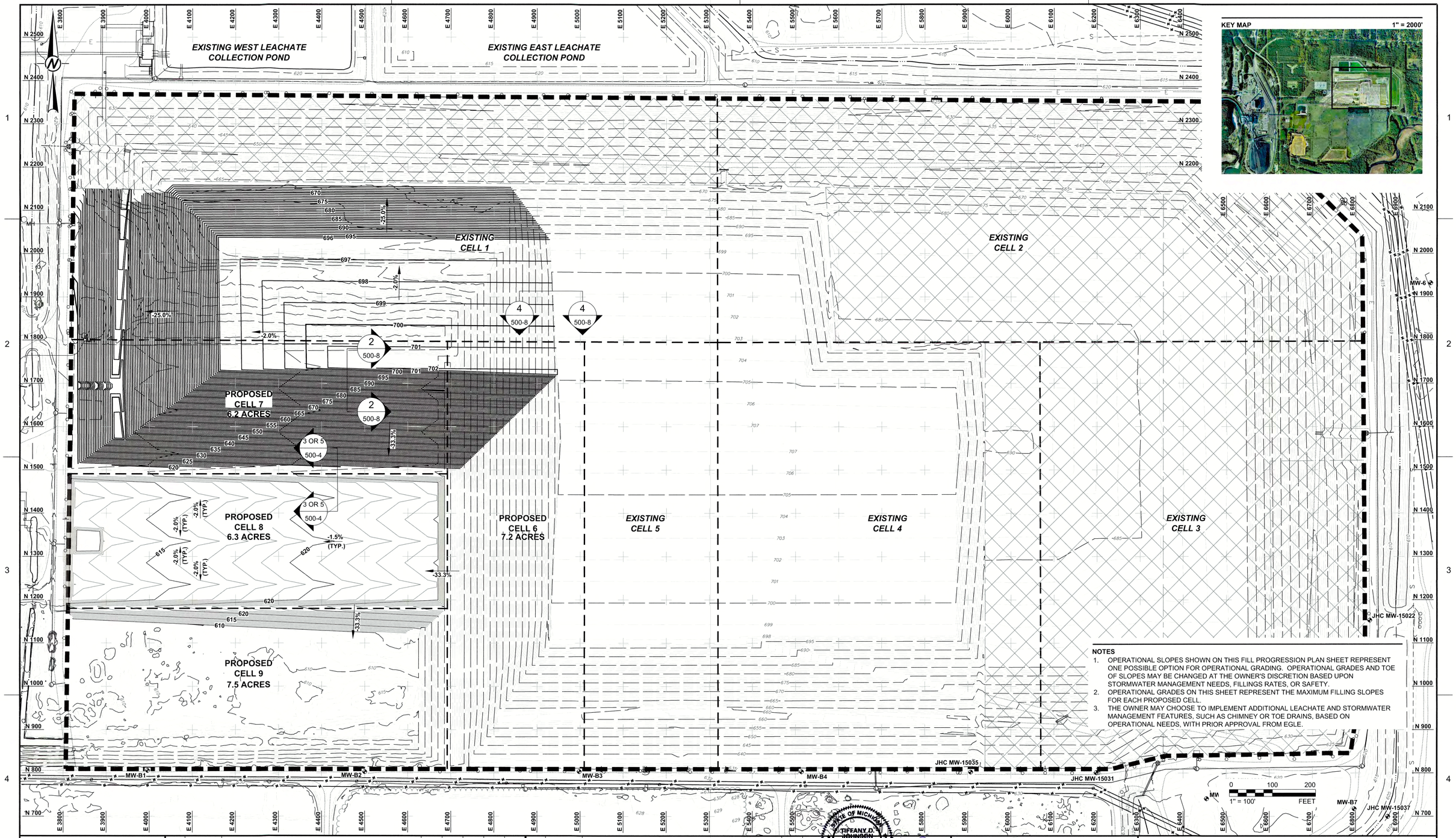
SIGNATURE
NAME
TIFFANY D. JOHNSON
MICHIGAN P.E. No.
6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

FILLING PROGRESSION PLAN - SHEET 2

SCALE: 1" = 100'	DRAWING NO.	SHEET	REV.
JOB: PT-02661	---	400-5	0



KEY MAP 1" = 2000'

NOTES

1. OPERATIONAL SLOPES SHOWN ON THIS FILL PROGRESSION PLAN SHEET REPRESENT ONE POSSIBLE OPTION FOR OPERATIONAL GRADING. OPERATIONAL GRADES AND TOE OF SLOPES MAY BE CHANGED AT THE OWNER'S DISCRETION BASED UPON STORMWATER MANAGEMENT NEEDS, FILLINGS RATES, OR SAFETY.
2. OPERATIONAL GRADES ON THIS SHEET REPRESENT THE MAXIMUM FILLING SLOPES FOR EACH PROPOSED CELL.
3. THE OWNER MAY CHOOSE TO IMPLEMENT ADDITIONAL LEACHATE AND STORMWATER MANAGEMENT FEATURES, SUCH AS CHIMNEY OR TOE DRAINS, BASED ON OPERATIONAL NEEDS, WITH PRIOR APPROVAL FROM EGLE.

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	SF	DS	GD	TJ	GA
0	2021-06-30	SUBMITTED TO EGLE					

DR BY CK APP CO

STATE OF MICHIGAN TIFFANY D. JOHNSON ENGINEER NO. 49160 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

NAME: TIFFANY D. JOHNSON

MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

FILLING PROGRESSION PLAN - SHEET 3

SCALE: 1" = 100'	DRAWING NO.	SHEET	REV.
JOB: PT-02661	---	400-6	0

EXISTING WEST LEACHATE COLLECTION POND

EXISTING EAST LEACHATE COLLECTION POND

EXISTING CELL 1

EXISTING CELL 2

EXISTING CELL 3

EXISTING CELL 4

EXISTING CELL 5

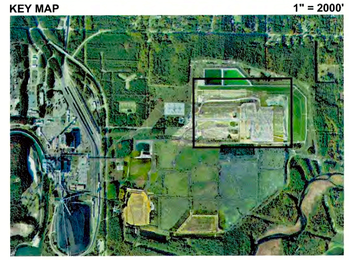
PROPOSED CELL 7, 6.2 ACRES

PROPOSED CELL 8 6.3 ACRES

PROPOSED CELL 6 7.2 ACRES

PROPOSED CELL 9 7.5 ACRES

KEY MAP 1" = 2000'



NOTES

1. OPERATIONAL SLOPES SHOWN ON THIS FILL PROGRESSION PLAN SHEET REPRESENT ONE POSSIBLE OPTION FOR OPERATIONAL GRADING. OPERATIONAL GRADES AND TOE OF SLOPES MAY BE CHANGED AT THE OWNER'S DISCRETION BASED UPON STORMWATER MANAGEMENT NEEDS, FILLINGS RATES, OR SAFETY.
2. OPERATIONAL GRADES ON THIS SHEET REPRESENT THE MAXIMUM FILLING SLOPES FOR EACH PROPOSED CELL.
3. THE OWNER MAY CHOOSE TO IMPLEMENT ADDITIONAL LEACHATE AND STORMWATER MANAGEMENT FEATURES, SUCH AS CHIMNEY OR TOE DRAINS, BASED ON OPERATIONAL NEEDS, WITH PRIOR APPROVAL FROM EGLE.

0 100 200
1" = 100' FEET

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	SF	DS	GD	TJ	GA
0	2021-06-30	SUBMITTED TO EGLE					

STATE OF MICHIGAN — TIFFANY D JOHNSON — ENGINEER — NO. 49130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

NAME: TIFFANY D. JOHNSON

MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

FILLING PROGRESSION PLAN - SHEET 4

SCALE	DRAWING NO.	SHEET	REV.
1" = 100'	---	400-7	0

JOB: PT-02661

EXISTING WEST LEACHATE COLLECTION POND

EXISTING EAST LEACHATE COLLECTION POND

EXISTING CELL 1

EXISTING CELL 2

EXISTING CELL 3

EXISTING CELL 4

EXISTING CELL 5

PROPOSED CELL 7 6.2 ACRES

PROPOSED CELL 8 6.3 ACRES

PROPOSED CELL 6 7.2 ACRES

PROPOSED CELL 9 7.5 ACRES

4 500-8

4 500-8

MW-B1

MW-B2

MW-B3

MW-B4

MW-6

MW-B7

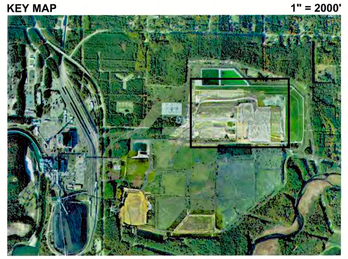
JHC MW-15022

JHC MW-15035

JHC MW-15031

JHC MW-15037

KEY MAP 1" = 2000'



NOTES

1. OPERATIONAL SLOPES SHOWN ON THIS FILL PROGRESSION PLAN SHEET REPRESENT ONE POSSIBLE OPTION FOR OPERATIONAL GRADING. OPERATIONAL GRADES AND TOE OF SLOPES MAY BE CHANGED AT THE OWNER'S DISCRETION BASED UPON STORMWATER MANAGEMENT NEEDS, FILLINGS RATES, OR SAFETY.
2. OPERATIONAL GRADES ON THIS SHEET REPRESENT THE MAXIMUM FILLING SLOPES FOR EACH PROPOSED CELL.
3. THE OWNER MAY CHOOSE TO IMPLEMENT ADDITIONAL LEACHATE AND STORMWATER MANAGEMENT FEATURES, SUCH AS CHIMNEY OR TOE DRAINS, BASED ON OPERATIONAL NEEDS, WITH PRIOR APPROVAL FROM EGLE.

0 100 200
1" = 100' FEET

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
	0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

TIFFANY D JOHNSON ENGINEER NO. 49180 STATE OF MICHIGAN LICENSED PROFESSIONAL ENGINEER

SIGNATURE

NAME: TIFFANY D. JOHNSON

MICHIGAN P.E. No. 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

FILLING PROGRESSION PLAN - SHEET 5

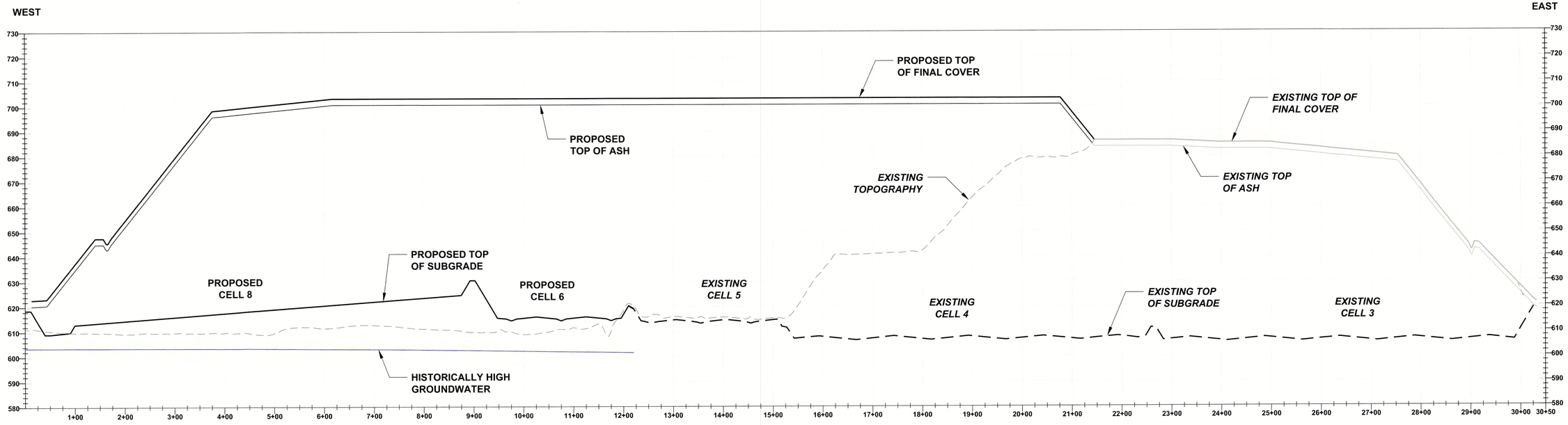
SCALE: 1" = 100'

JOB: PT-02661

DRAWING NO. ---

SHEET 400-8

REV. 0



NOT TO SCALE (1 / 500-1) CROSS SECTION A-A'

NOTE(S)

1. SEE SHEET 400-3 FOR CROSS SECTION LOCATIONS.

0 20 40
1" = 20' FEET
VERTICAL SCALE

0 100 200
1" = 100' FEET
HORIZONTAL SCALE

STATE OF MICHIGAN
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ENGINEER NO. 49160
LICENSED PROFESSIONAL ENGINEER
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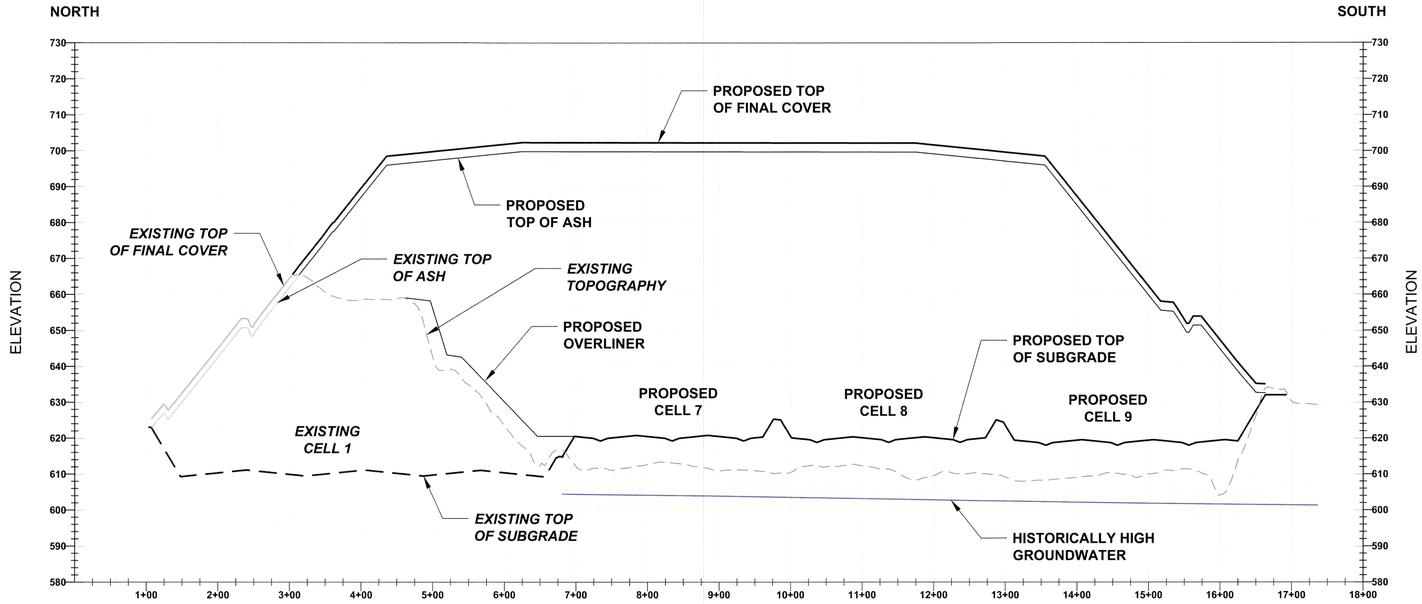
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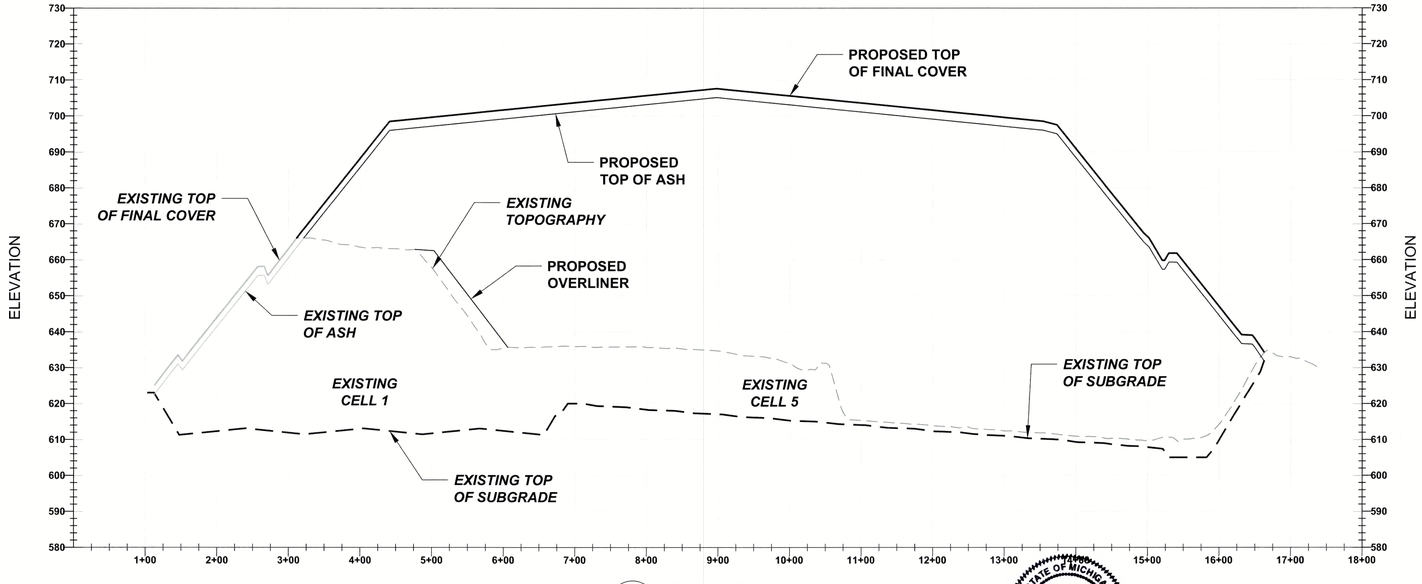
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TYPICAL LANDFILL CROSS SECTIONS - SHEET 1

SCALE: 1" = 100' (H) / 1" = 20' (V)
JOB: PT-02661
DRAWING NO.: ---
SHEET: 500-1
REV.: 0



NOT TO SCALE — 1 / 500-2 — CROSS SECTION B-B'



NOT TO SCALE — 2 / 500-2 — CROSS SECTION C-C'

NOTE(S)
1. SEE SHEET 400-3 FOR CROSS SECTION LOCATIONS.

0 20 40 — 1" = 20' FEET — **VERTICAL SCALE**

0 100 200 — 1" = 100' FEET — **HORIZONTAL SCALE**

STATE OF MICHIGAN — TIFFANY D. JOHNSON — ENGINEER NO. 49160 — LICENSED PROFESSIONAL ENGINEER — 7/7/21

REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
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TYPICAL LANDFILL CROSS SECTIONS - SHEET 2

SCALE: 1" = 100' (H) / 1" = 20' (V)
JOB: PT-02661
DRAWING NO.: ---
SHEET: 500-2
REV.: 0

Layer System	*Component*	*Material Type (See Notes 1 and 2)*	*Permeability (cm/sec)*	*Transmissivity (m^2/sec) (See Note 4)*	*Thickness (ft) (or as shown)*
FINAL COVER	Vegetative Support Layer	Minimum 2.5 percent organic matter and pH between 6.4 and 7.5 to support the establishment of vegetation and retain moisture.	n/a	n/a	0.5
	Soil Erosion Layer	SM, SW, or SP. No stones larger than 0.75 inches, and they will be free of materials that could harm the geosynthetics	n/a	n/a	2.0
	Cap Drain Tile	6 inch diameter perforated corrugated perforated pipe with filter sock.	n/a	n/a	6-inch diameter
	Flexible Membrane Liner	40-mil LLDPE textured geomembrane (see Note 6)	n/a	n/a	40-mil
	Subgrade Layer - Select Fill	SP, SW, SM, or SP-SM in accordance with ASTM D 2487, or can consist of ash. Select fill must have 100% by weight finer than the No. 4 sieve and no particles larger than 0.75-inch.	n/a	n/a	1.0
FLOOR	Sump stone and pipe aggregate (see Note 5)	Soil: Washed GW, GP, MDOT 6A stone, or other acceptable soil material, free of any organic material, and has less than 5% of material, by weight, passing the 3/8-inch sieve, maximum 1-inch and is carbonate free, stone is burrito wrapped in an 8 oz/sy geotextile cushion.	n/a	n/a	Varies
	Protective Layer	Soil: SW, SP or other acceptable soil material, free of any organic material, and has less than 5% of material, by weight, passing the number 200 sieve and is carbonate free.	1×10^{-3} cm/sec (min.)	n/a	1.0
	Primary Single Sided Geocomposite Drainage Layer (see Note 4)	6-oz/sy nonwoven needle-punched geotextile heat bonded on top side of 250-mil geonet	n/a	1×10^{-3} m^2/sec (min.)	250-mil
	Primary Flexible Membrane Liner (see Notes 1 and 2)	60-mil smooth or textured HDPE geomembrane (see Note 6)	n/a	n/a	60-mil
	Geosynthetic Clay Liner (GCL)	Geosynthetic Clay Liner (see Note 7)	1×10^{-9} cm/sec (max.)	n/a	0.24-in.
	Secondary Single Sided Geocomposite Drainage Layer (see Note 4)	6-oz/sy nonwoven needle-punched geotextile heat bonded on top side of 200-mil geonet	n/a	5×10^{-4} m^2/sec (min.)	200-mil
	Secondary Flexible Membrane Liner (see Notes 1 and 2)	60-mil smooth or textured HDPE geomembrane (see Note 6)	n/a	n/a	60-mil
	Subgrade Soil	In Situ Soils classified as SP, SW, SM, or SP-SM, fill must have 100% by weight finer than the No. 4 sieve and no particles larger than 0.75-inch.	n/a	n/a	n/a
SIDESLOPE	**OPTION 1** - Drainage Layer	Soil: SW, SP or other acceptable soil material, free of any organic material, and has less than 5% of material, by weight, passing the number 200 sieve and is carbonate free. Maximum particle size of 1-1/2 inches, if used in conjunction with a protective geotextile. Granular soil drainage layer shall have 98% of the particle size less than 3/8-inch, if placed in direct contact with the geomembrane.	1×10^{-3} cm/sec (min.)	n/a	2.0
	OPTION 2 - Drainage Layer Soil plus Cushion Geotextile (see Note 5)	Soil: SW, SP or other acceptable soil material, free of any organic material, and has less than 5% of material, by weight, passing the number 200 sieve and is carbonate free. Maximum particle size of 1-1/2 inches, if used in conjunction with a protective geotextile. Granular soil drainage layer shall have 98% of the particle size less than 3/8-inch, if placed in direct contact with the geomembrane. Cushion geotextile: 10-oz/sy nonwoven needle-punched geotextile.	1×10^{-3} cm/sec (min.)	n/a	1.0 ft for soil 10-oz/sy for geotextile
	OPTION 3 - Drainage Layer - Soil plus Double Sided Geocomposite Drainage Layer (see Note 4)	Soil: SW, SP or other acceptable soil material, free of any organic material, and has less than 5% of material, by weight, passing the number 200 sieve and is carbonate free. Geocomposite: 6-oz/sy nonwoven needle-punched geotextile heat bonded on both sides of 250-mil geonet	1×10^{-3} cm/sec (min.)	1×10^{-3} m^2/sec (min.)	1.0 ft for soil 250-mil for geonet
	Primary Flexible Membrane Liner (see Notes 1 and 2)	60-mil textured HDPE geomembrane (see Note 6)	n/a	n/a	60-mil
	Geosynthetic Clay Liner (GCL)	Geosynthetic Clay Liner (see Note 7)	1×10^{-9} cm/sec (max.)	n/a	0.24-in.
	Double Sided Geocomposite Drainage Layer (see Note 4)	6-oz/sy nonwoven needle-punched geotextile heat bonded on both sides of 200-mil geonet	n/a	5×10^{-4} m^2/sec (min.)	200-mil
	Secondary Flexible Membrane Liner (see Notes 1 and 2)	60-mil textured HDPE geomembrane (see Note 6)	n/a	n/a	60-mil
	Subgrade Soil	In Situ Soils classified as SP, SW, SM, or SP-SM, fill must have 100% by weight finer than the No. 4 sieve and no particles larger than 0.75-inch.	n/a	n/a	n/a
OVERLINER	Drainage Layer	Soil: Natural sand or bottom ash within the landfill footprint. At Owner's discretion, an additional double-sided geocomposite may be placed.	1×10^{-3} cm/sec (min.)	n/a	1.0 ft for soil
	Ash Fill	Existing or placed ash fill	n/a	n/a	Varies

System	*Component*	*Nominal Pipe Diameter and Type*	*SDR (see note 3)*	*SCH*	*Perforation Diameter (inches)*
PIPING	Lateral Cell Floor Collection Pipe	8-inch HDPE (or PVC)	11	80	3/8-inch
	Cleanout Riser Pipe	8-inch HDPE (or PVC)	11	80	Solid
	Sump Collection Pipe	18-inch HDPE (or PVC)	17	80	3/8-inch
	Sump Riser Pipe	18-inch HDPE (or PVC)	17	80	Solid
	Sump Pump Piping	3-inch SDR 11 HDPE pipe contained in a 6-inch SDR 32.5 HDPE pipe		n/a	Solid - Dual Contained
	Gravity Piping	12-inch HDPE	32.5	n/a	Solid

NOTES

1) See Section F, Table 1 of this Construction Permit Application for interface friction angle information.
2) Purchased material interface strength (adhesion and friction angle) must be tested between the geosynthetic and the adjacent geosynthetic or soil layer above and below.
3) Where two pipes of different SDR are joined, the fitting shall be the lower SDR value of the required SDR value for fittings with each pipe.
4) Geocomposite shall meet the noted Transmissivity under 10,000 pounds per square foot with a 2-percent slope, tested between sand and geomembrane.
5) Geotextile wrap must have an AOS (apparent opening size O95) less than or equal to two times the D85 of the soil drainage layer material.
6) Textured geomembrane shall be used on slopes greater than 5-percent (%).
7) The combination of thickness and hydraulic conductivity shall be such that GCL is equivalent to the protection of a 24-inch thick soil liner with a permeability of 1 x 10-7 cm/sec.

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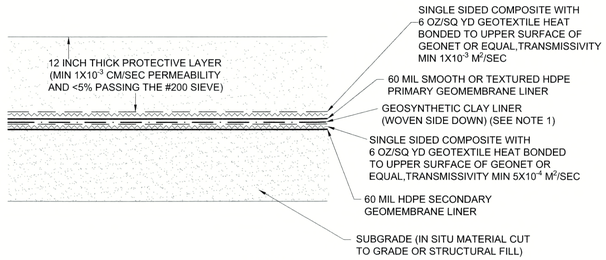
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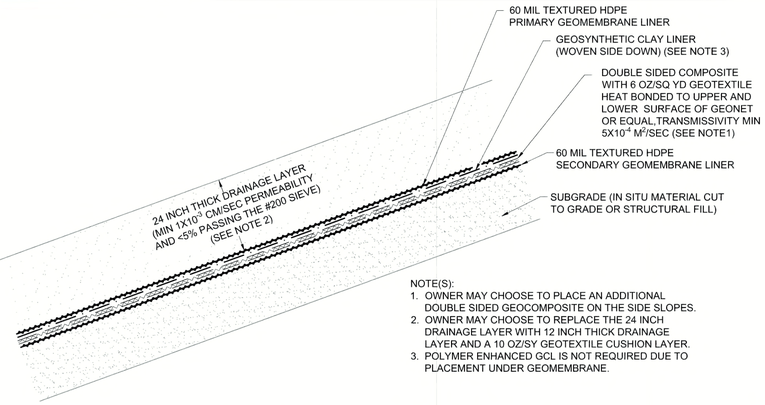
MATERIAL PROPERTIES TABLE

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JOB: PT-02661
DRAWING NO.: ---
SHEET: 500-3
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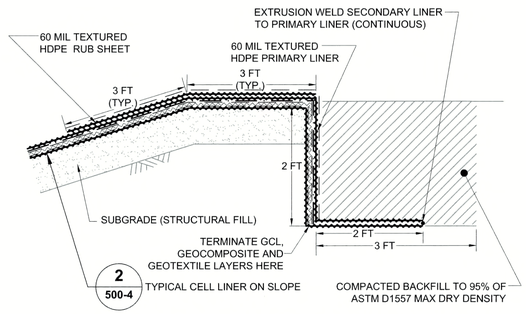
NOTE(S):
1. POLYMER ENHANCED GCL IS NOT REQUIRED DUE TO PLACEMENT UNDER GEOMEMBRANE.

NOT TO SCALE 1 / 500-4 **TYPICAL CELL LINER ON FLOOR DETAIL**

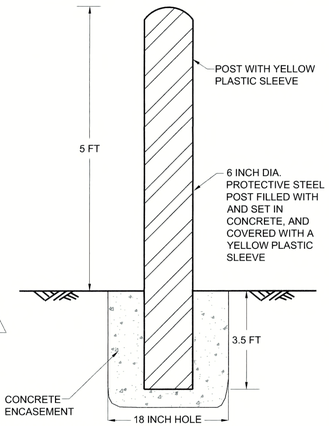


NOTE(S):
1. OWNER MAY CHOOSE TO PLACE AN ADDITIONAL DOUBLE SIDED GEOCOMPOSITE ON THE SIDE SLOPES.
2. OWNER MAY CHOOSE TO REPLACE THE 24 INCH DRAINAGE LAYER WITH 12 INCH THICK DRAINAGE LAYER AND A 10 OZ/SY GEOTEXTILE CUSHION LAYER.
3. POLYMER ENHANCED GCL IS NOT REQUIRED DUE TO PLACEMENT UNDER GEOMEMBRANE.

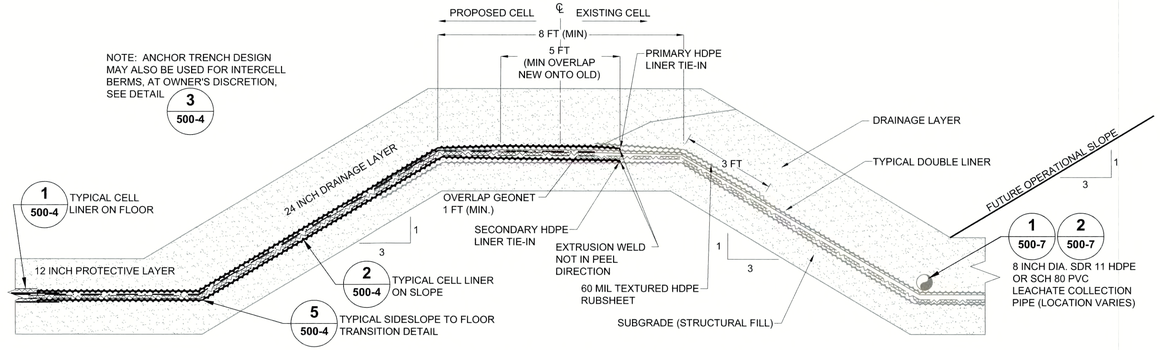
NOT TO SCALE 2 / 500-4 **TYPICAL CELL LINER ON SLOPE DETAIL**



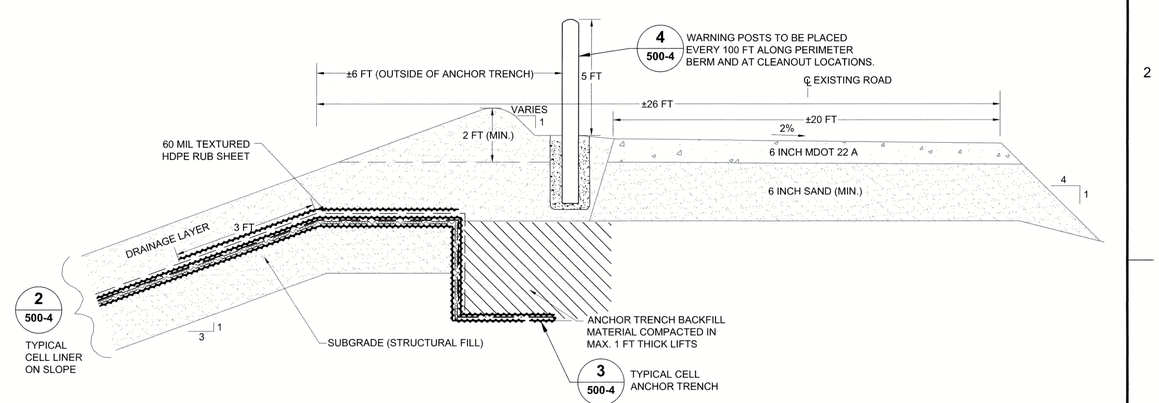
NOT TO SCALE 3 / 500-4 **TYPICAL CELL ANCHOR TRENCH DETAIL**



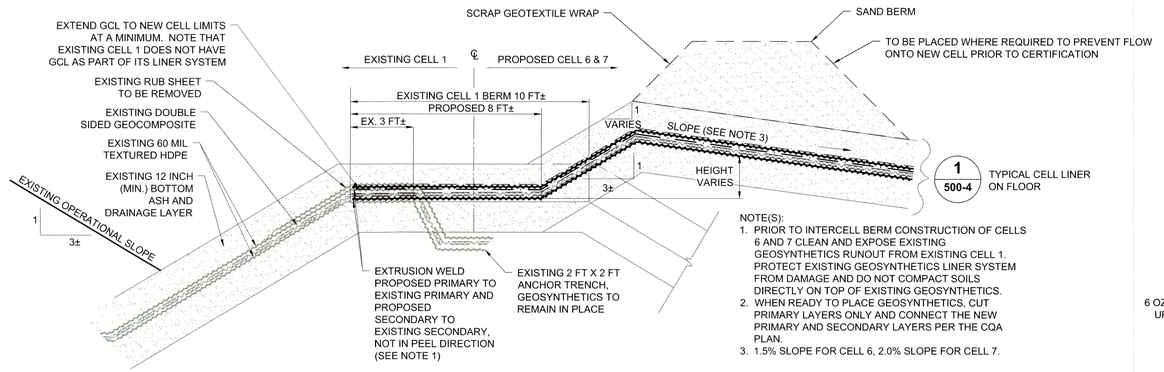
NOT TO SCALE 4 / 500-4 **TYPICAL WARNING POST DETAIL**



NOT TO SCALE 5 / 500-4 **TYPICAL TIE-IN DETAIL - EXISTING CELL TO PROPOSED CELL (CELLS 6 THROUGH 9)**

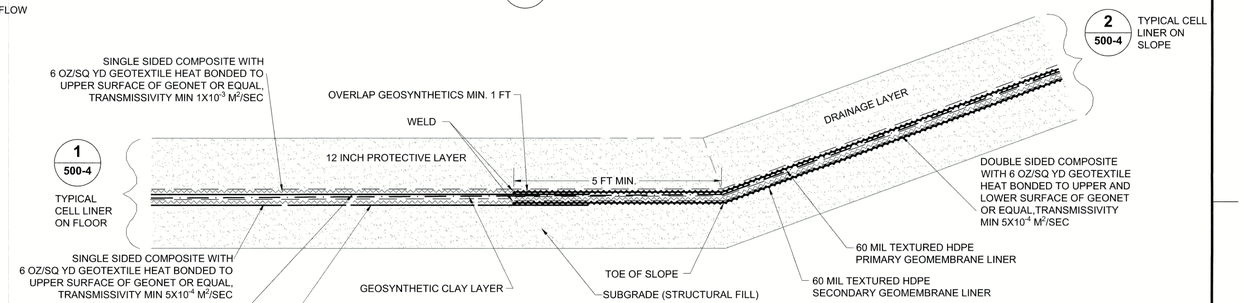


NOT TO SCALE 6 / 500-4 **TYPICAL PERIMETER BERM DETAIL**



NOTE(S):
1. PRIOR TO INTERCELL BERM CONSTRUCTION OF CELLS 6 AND 7 CLEAN AND EXPOSE EXISTING GEOSYNTHETICS RUNOUT FROM EXISTING CELL 1. PROTECT EXISTING GEOSYNTHETICS LINER SYSTEM FROM DAMAGE AND DO NOT COMPACT SOILS DIRECTLY ON TOP OF EXISTING GEOSYNTHETICS.
2. WHEN READY TO PLACE GEOSYNTHETICS, CUT PRIMARY LAYERS ONLY AND CONNECT THE NEW PRIMARY AND SECONDARY LAYERS PER THE CQA PLAN.
3. 1.5% SLOPE FOR CELL 6, 2.0% SLOPE FOR CELL 7.

NOT TO SCALE 7 / 500-4 **TYPICAL NORTHERN TIE-IN DETAIL - EXISTING CELL 1 TO PROPOSED CELLS 6 AND 7**



NOT TO SCALE 8 / 500-4 **TYPICAL SIDESLOPE TO FLOOR TRANSITION DETAIL**

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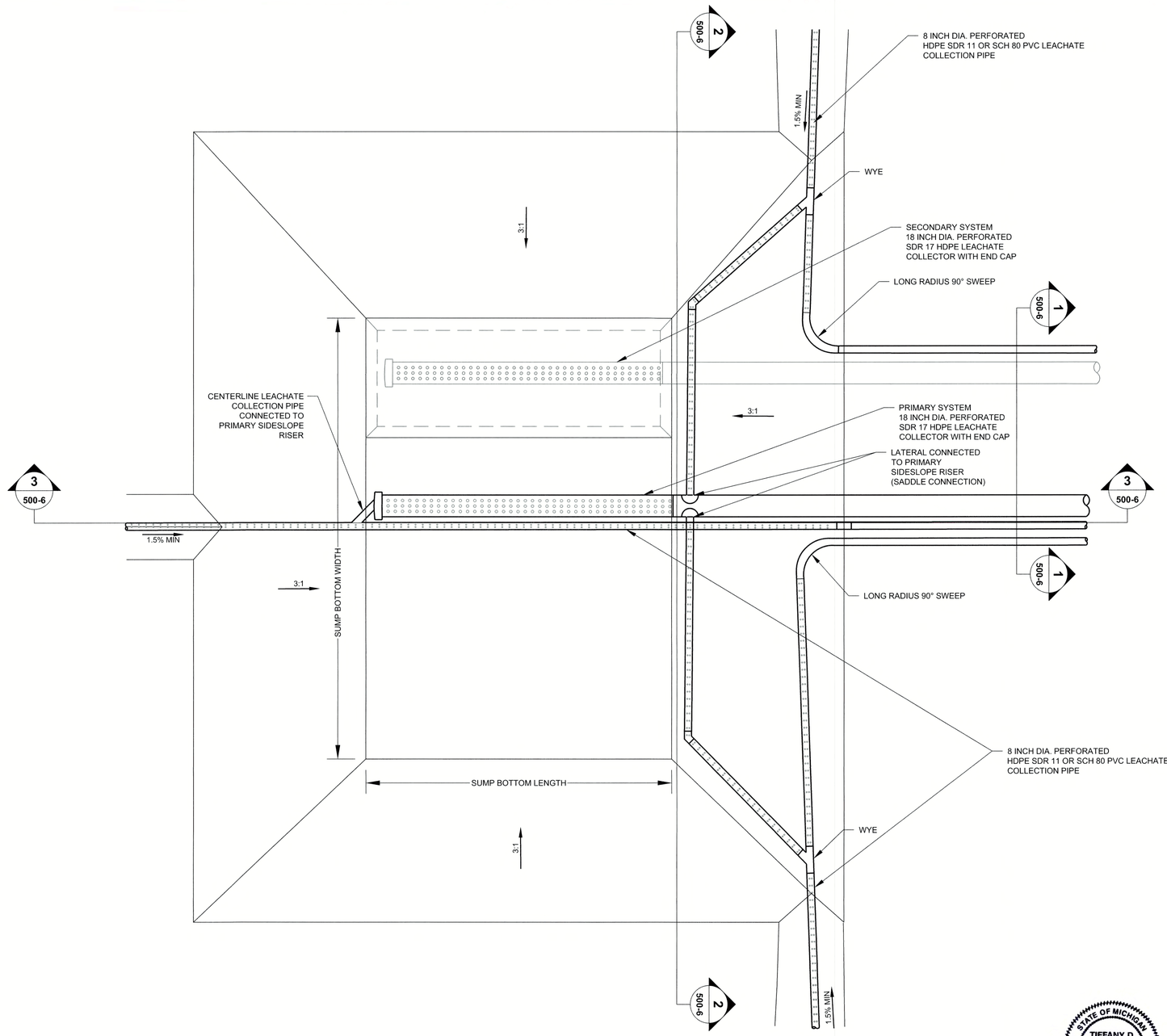
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BASE LINER SYSTEM DETAILS

SCALE: NONE
JOB: PT-02661
DRAWING NO.: ---
SHEET: 500-4
REV.: 0



NOT TO SCALE 1 / 500-5 **TYPICAL PLAN VIEW OF LEACHATE COLLECTION SUMP**

SUMP SCHEDULE

ITEM	CELL 6	CELL 7	CELL 8	CELL 9
GROUNDWATER ELEVATION	600.3	604.5	603.5	602.5
BOTTOM OF SUMP ELEVATION	605.4	609.6	609.1	608.4
SUMP CREST ELEVATION	608.4	612.6	612.1	611.4
PUMP ON ELEVATION	608.4	612.6	612.1	611.4
PUMP OFF ELEVATION	606.4	610.6	610.1	609.4
SUMP BOTTOM LENGTH (FT)	50	50	50	50
SUMP BOTTOM WIDTH (FT)	40	40	40	40
SUMP DEPTH (FT)	3.0	3.0	3.0	3.0

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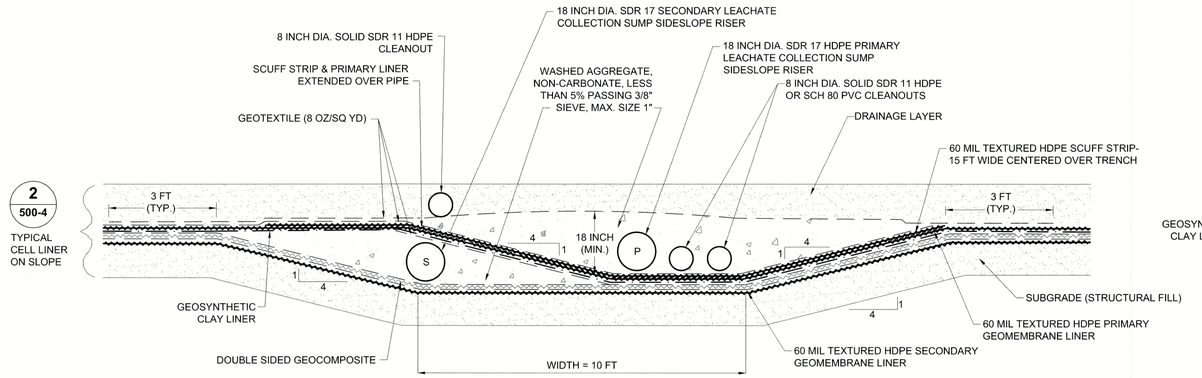
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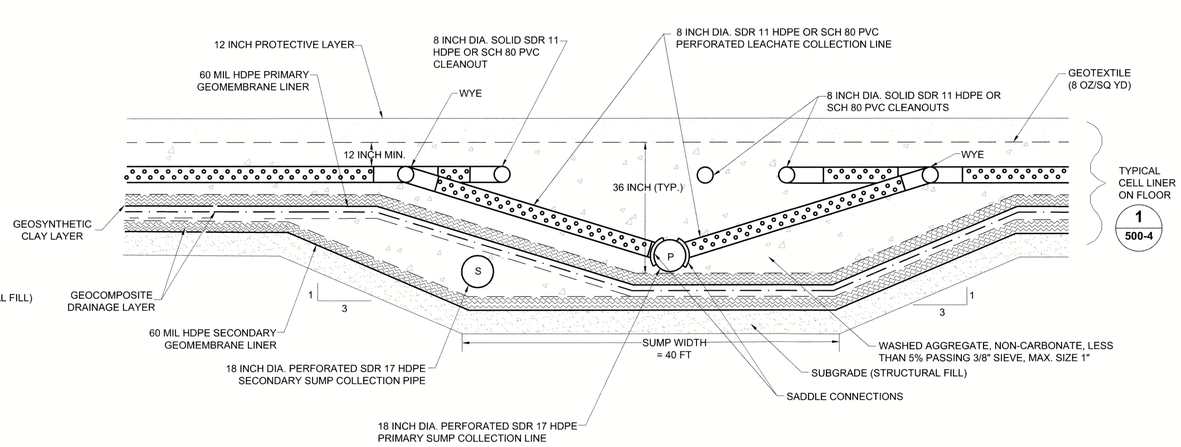
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LEACHATE COLLECTION SYSTEM DETAILS - SHEET 1

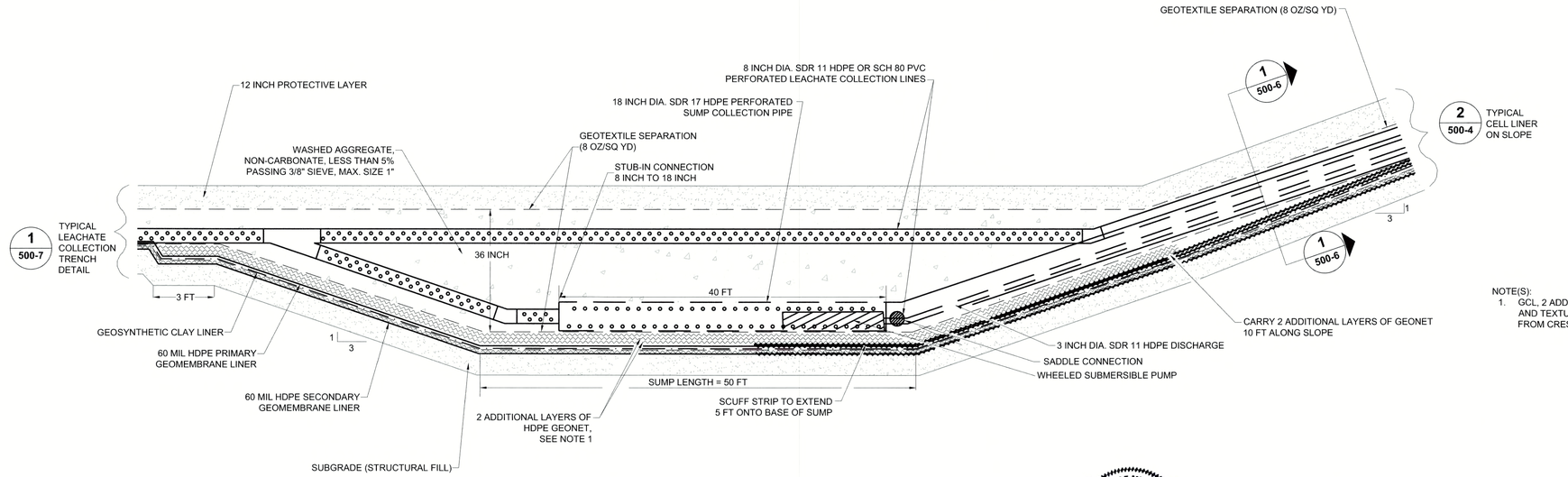
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DRAWING NO.: ---
SHEET: 500-5
REV.: 0



NOT TO SCALE 1 / 500-6 **TYPICAL SECTION THROUGH SIDESLOPE RISER PIPING**



NOT TO SCALE 2 / 500-6 **TYPICAL SECTION THROUGH COLLECTION SUMP**



NOTE(S):
1. GCL, 2 ADDITONAL LAYERS OF GEONET AND TEXTURED HDPE EXTENDS 3 FT FROM CREST AS SHOWN

NOT TO SCALE 3 / 500-6 **TYPICAL SECTION THROUGH COLLECTION SUMP - PRIMARY PIPE ONLY**

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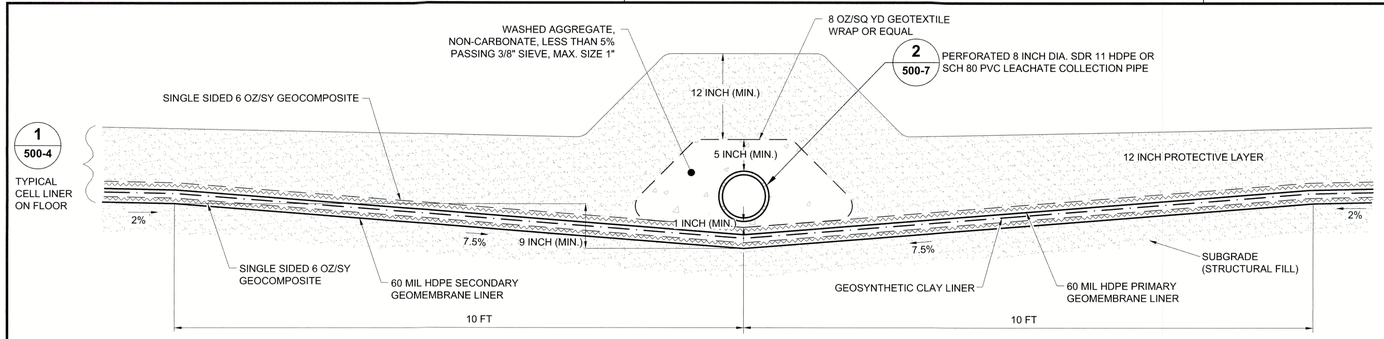
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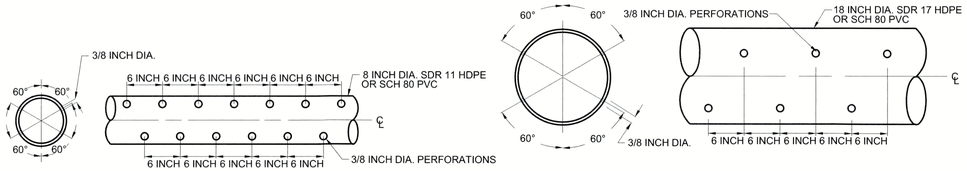
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LEACHATE COLLECTION SYSTEM DETAILS - SHEET 2

SCALE: NONE	DRAWING NO.	SHEET	REV.
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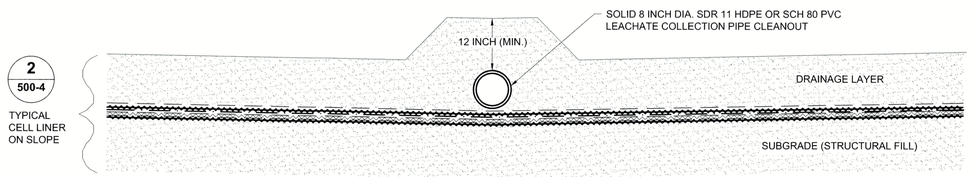
NOT TO SCALE 1 500-7 **TYPICAL LEACHATE COLLECTION TRENCH DETAIL**



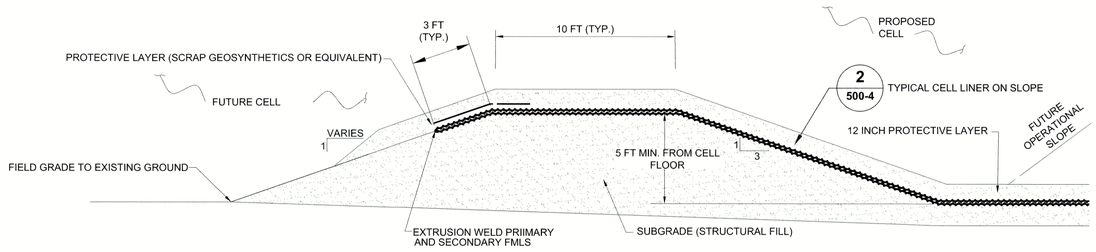
8 INCH DIAMETER PERFORATED SDR 11 HDPE OR SCH 80 PVC LEACHATE COLLECTION PIPE

18 INCH DIAMETER PERFORATED SDR 17 HDPE OR SCH 80 PVC SIDESLOPE RISER PIPE

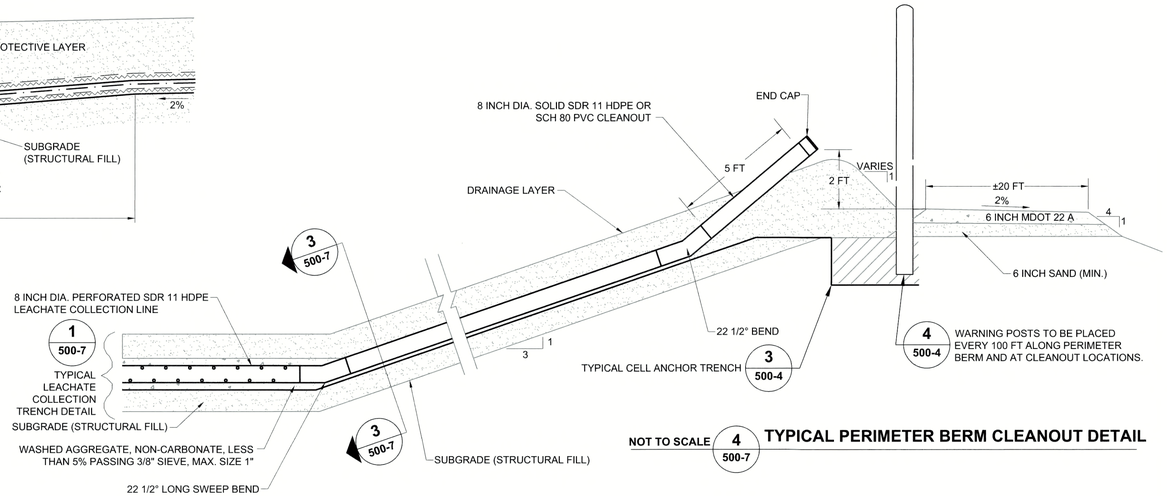
NOT TO SCALE 2 500-7 **TYPICAL PERFORATED PIPE DETAIL**



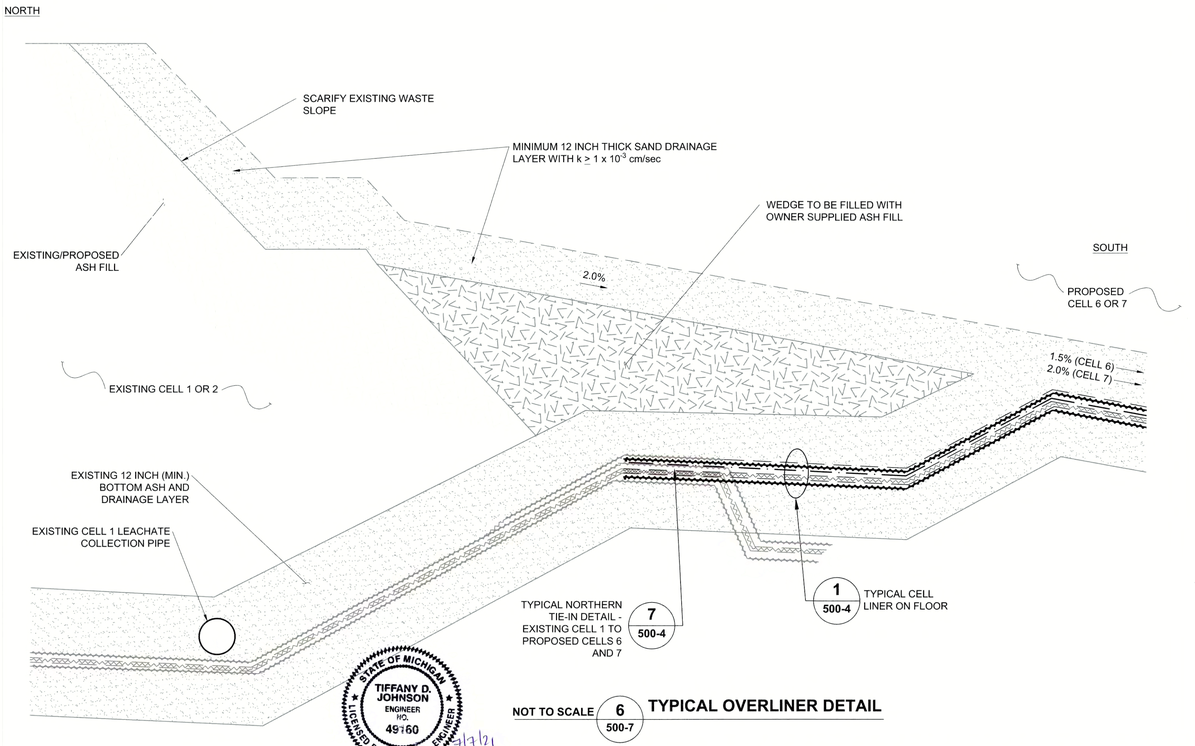
NOT TO SCALE 3 500-7 **TYPICAL SECTION THROUGH SIDESLOPE CLEANOUT**



NOT TO SCALE 5 500-7 **TYPICAL NEW CELL/FUTURE CELL BERM DETAIL**



NOT TO SCALE 4 500-7 **TYPICAL PERIMETER BERM CLEANOUT DETAIL**



NOT TO SCALE 6 500-7 **TYPICAL OVERLINER DETAIL**

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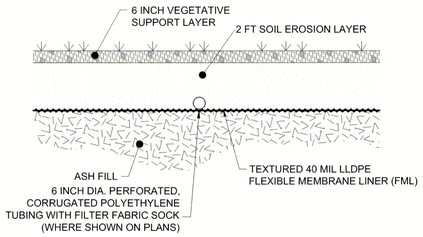
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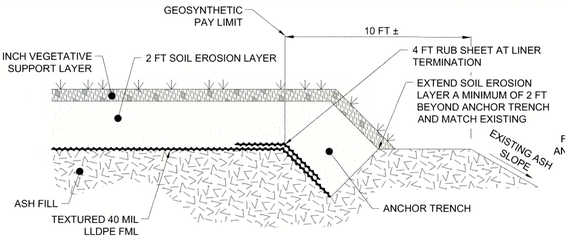
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WEST OLIVE, MI

LEACHATE COLLECTION SYSTEM DETAILS - SHEET 3

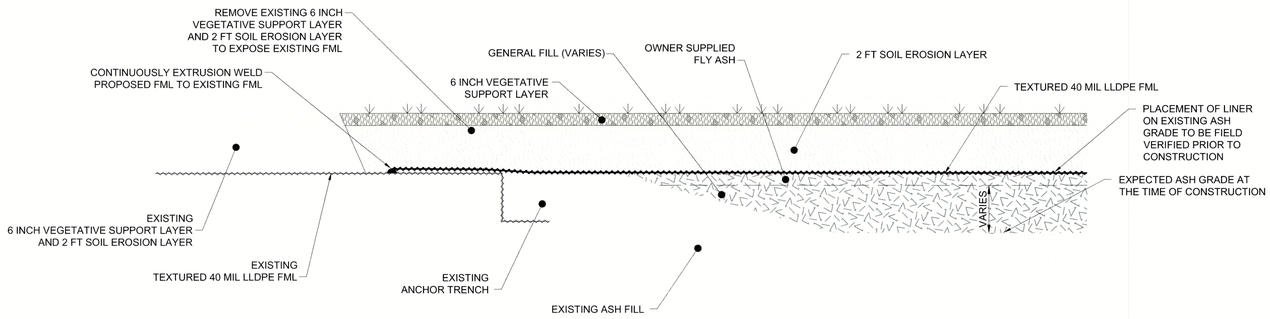
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JOB: PT-02661	---	500-7	0



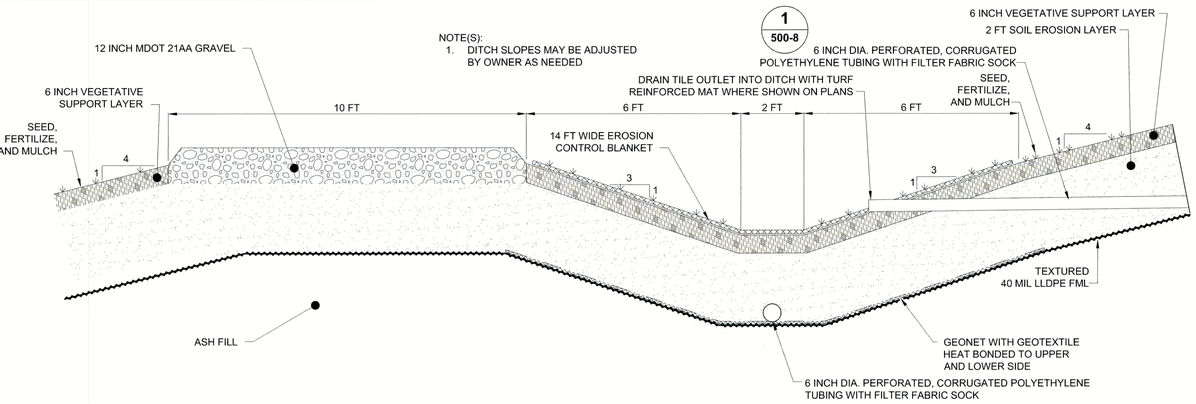
NOT TO SCALE 1 500-8 **TYPICAL FINAL COVER DETAIL**



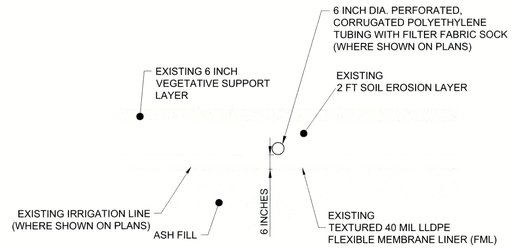
NOT TO SCALE 2 500-8 **TYPICAL FINAL COVER ANCHOR TRENCH DETAIL**



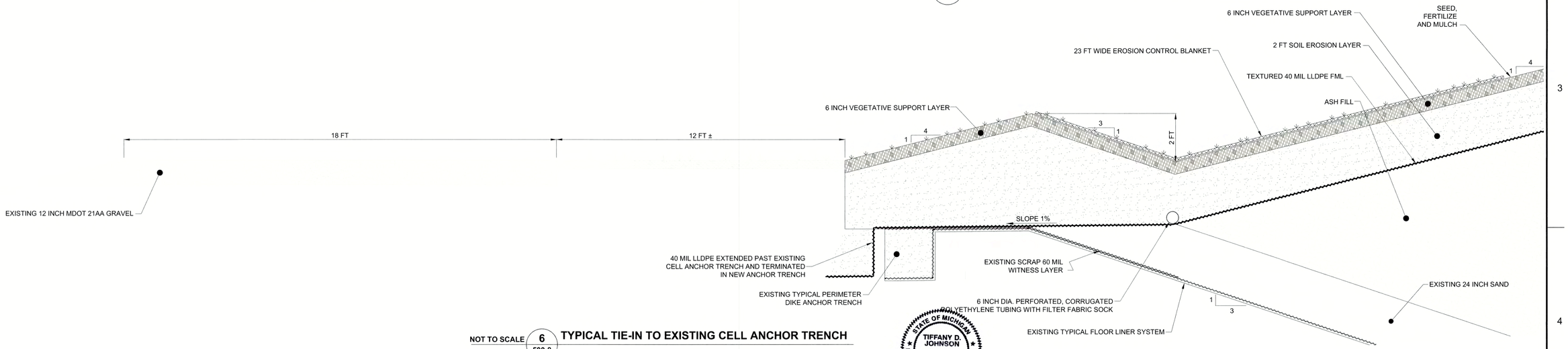
NOT TO SCALE 4 500-8 **TYPICAL TIE-IN TO EXISTING FINAL COVER SYSTEM**



NOT TO SCALE 3 500-8 **TYPICAL DRAINAGE BENCH DETAIL**



NOT TO SCALE 5 500-8 **TYPICAL DRAIN TILE IN EXISTING FINAL COVER DETAIL**



NOT TO SCALE 6 500-8 **TYPICAL TIE-IN TO EXISTING CELL ANCHOR TRENCH**

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER
NO. 49160
LICENSED PROFESSIONAL ENGINEER
7/7/21

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
	0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

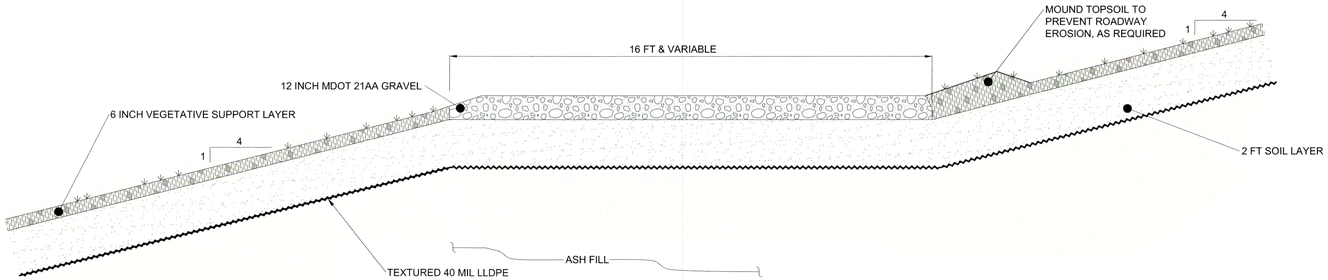
SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

FINAL COVER DETAILS - SHEET 1

SCALE: NONE	DRAWING NO.	SHEET	REV.
JOB: PT-02661	---	500-8	0



NOT TO SCALE

1
500-9

TYPICAL ACCESS ROAD DETAIL

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER
NO. 49160
LICENSED PROFESSIONAL ENGINEER
5/7/21

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
	0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

SIGNATURE
NAME
TIFFANY D. JOHNSON
MICHIGAN P.E. No.
6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

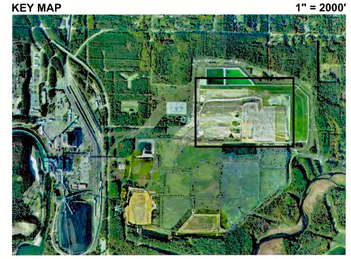
FINAL COVER DETAILS - SHEET 2

SCALE: NONE	DRAWING NO.	SHEET	REV.
JOB: PT-02661	---	500-9	0

EXISTING WEST LEACHATE COLLECTION POND

EXISTING EAST LEACHATE COLLECTION POND

KEY MAP 1" = 2000'



EXISTING CELL 1

EXISTING CELL 2

EXISTING 12 INCH DIA. SDR 32.5 PE LEACHATE TRANSFER PIPE

EXISTING TIE-IN LOCATION:
N=1773
E=3784
IE=611.1±

PROPOSED CELL 7 6.2 ACRES

PROPOSED CELL 8 6.3 ACRES

PROPOSED CELL 6 7.2 ACRES

PROPOSED CELL 9 7.5 ACRES

EXISTING CELL 5

EXISTING CELL 4

EXISTING CELL 3

PROPOSED 12 INCH DIA. GRAVITY LEACHATE TRANSFER PIPE

EXISTING TIE-IN LOCATION:
N=761
E=4953
IE=628.9±

EXISTING 12 INCH DIA. SDR 32.5 PE LEACHATE TRANSFER PIPE

MW-B1 MW-B2 MW-B3 MW-B4 JHC MW-15035 JHC MW-15031 JHC MW-15022 JHC MW-15037 MW-6 MW-7

0 100 200
1" = 100' FEET

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
	0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

TIFFANY D. JOHNSON ENGINEER NO. 49160 LICENSED PROFESSIONAL ENGINEER STATE OF MICHIGAN

SIGNATURE

NAME: TIFFANY D. JOHNSON

MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

LEACHATE TRANSFER SYSTEM PLAN

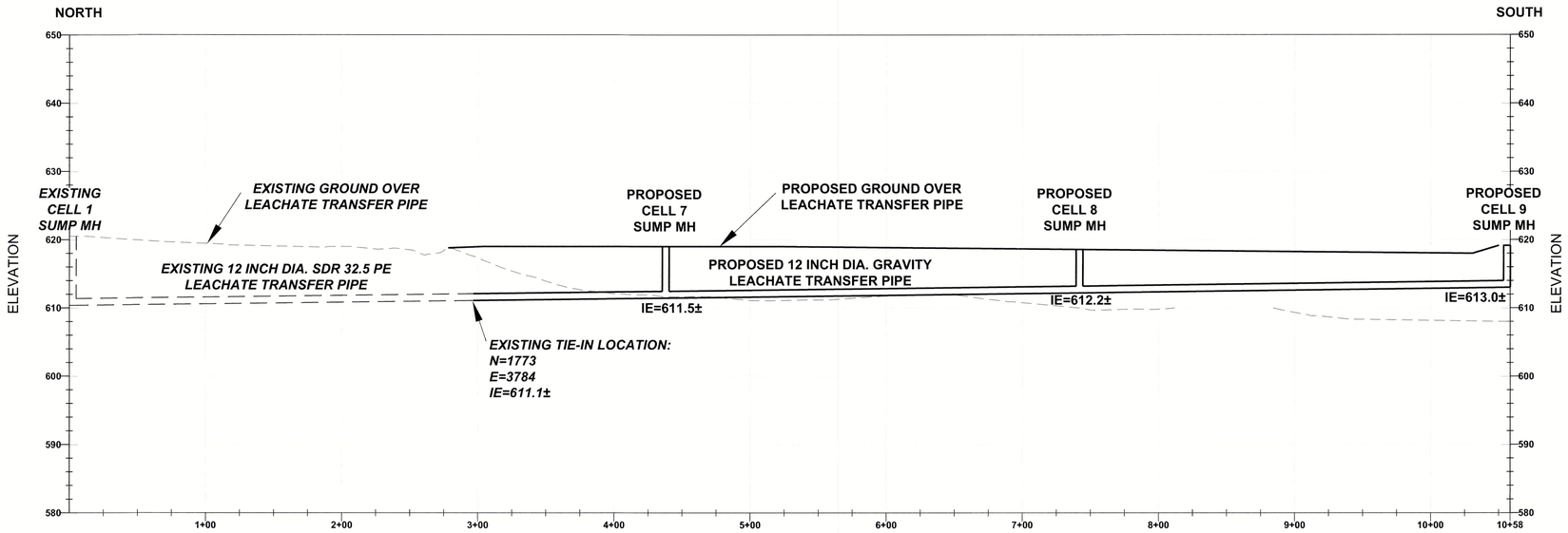
SCALE: 1" = 100'

JOB: PT-02661

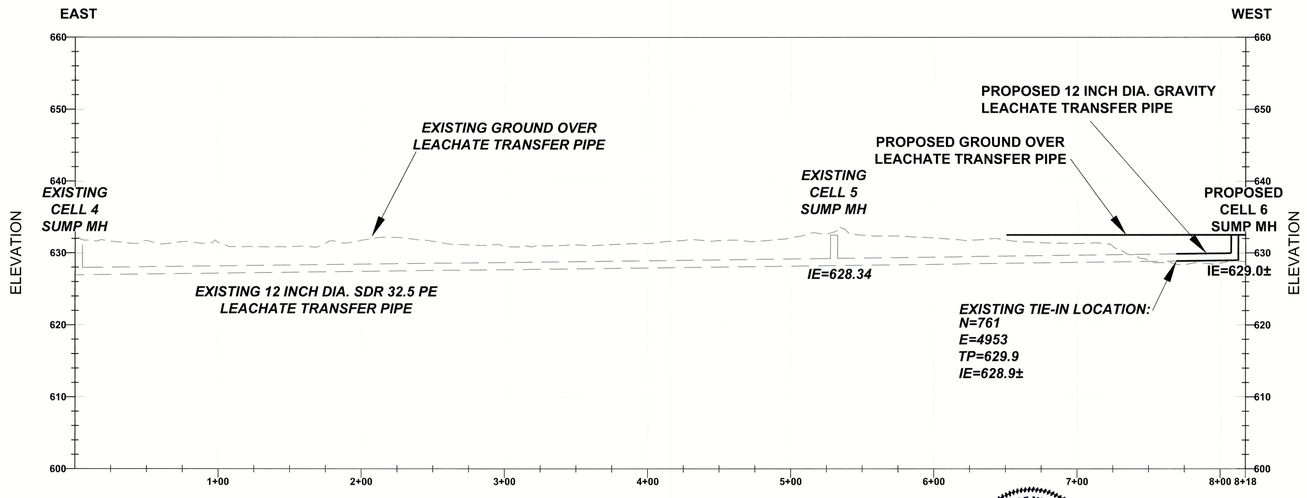
DRAWING NO. ---

SHEET 600-1

REV. 0



NOT TO SCALE 1 600-2 CROSS SECTION A-A'



NOT TO SCALE 2 600-2 CROSS SECTION B-B'

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER NO. 49160
LICENSED PROFESSIONAL ENGINEER
7/7/21

0 50 100
1" = 50' FEET

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

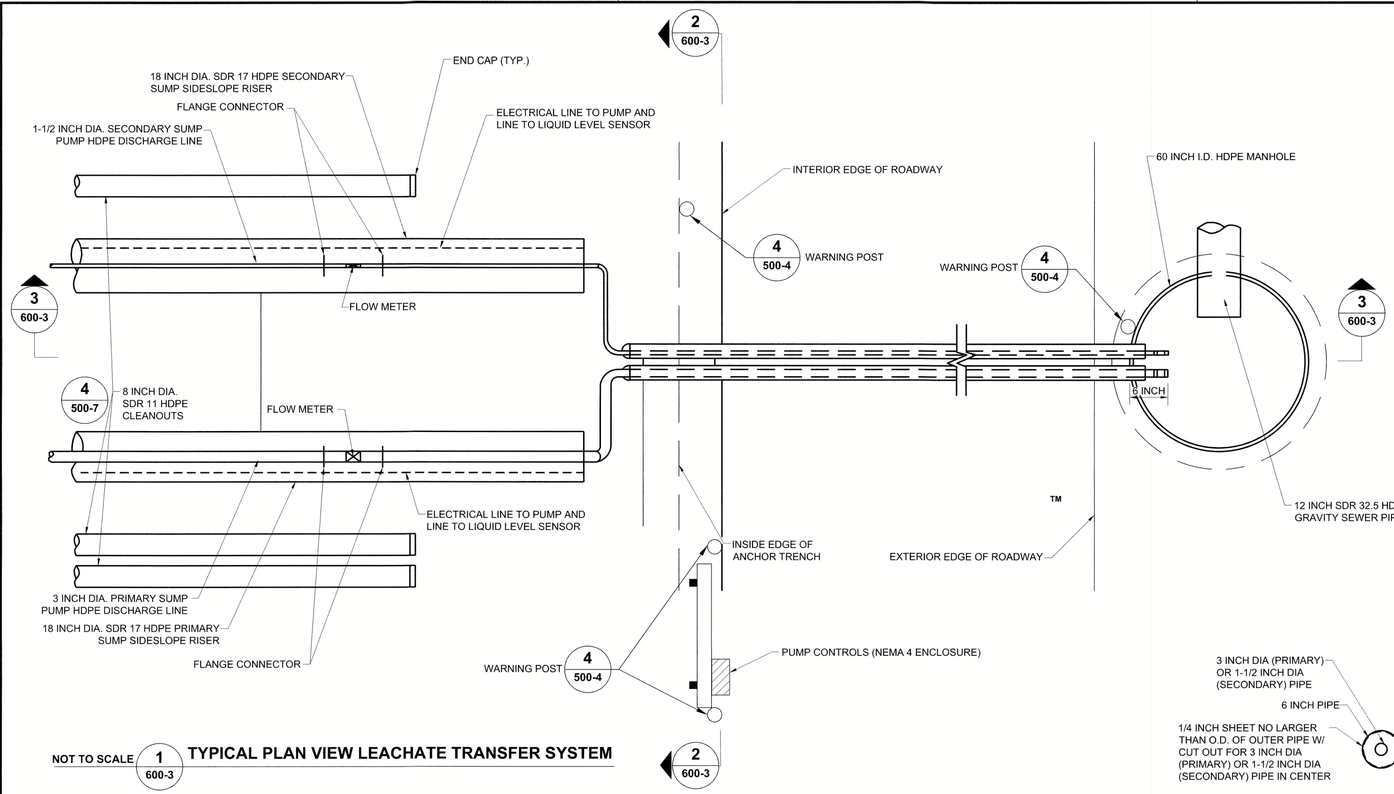
REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

SIGNATURE
NAME
TIFFANY D. JOHNSON
MICHIGAN P.E. No.
6201049160

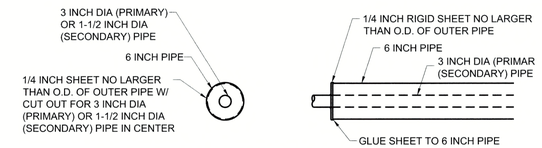
Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

LEACHATE TRANSFER SYSTEM PROFILES

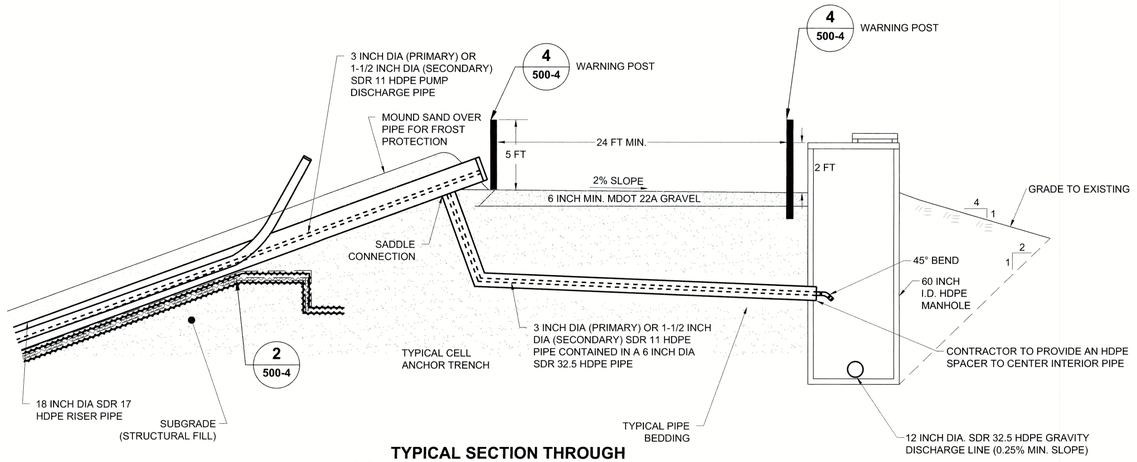
SCALE: 1" = 50' (H) / 1" = 5' (V)
JOB: PT-02661
DRAWING NO. ---
SHEET 600-2
REV. 0



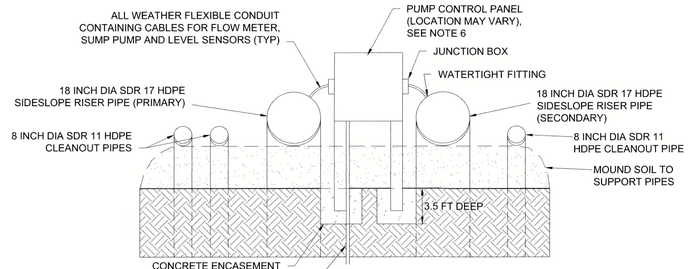
NOT TO SCALE 1 600-3 **TYPICAL PLAN VIEW LEACHATE TRANSFER SYSTEM**



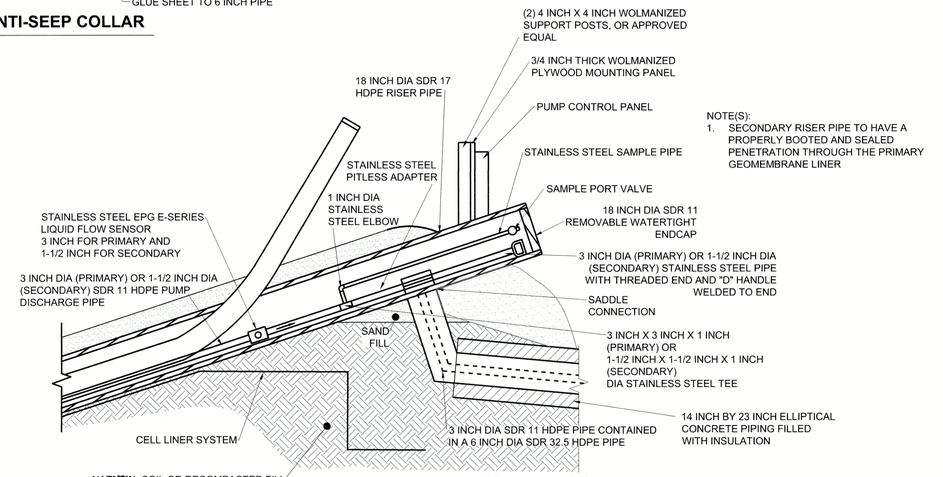
NOT TO SCALE 4 600-3 **TYPICAL ANTI-SEEP COLLAR**



NOT TO SCALE 3 600-3 **TYPICAL SECTION THROUGH LEACHATE TRANSFER SYSTEM**



NOT TO SCALE 2 600-3 **TYPICAL SIDESLOPE RISER ELEVATION**



NOT TO SCALE 5 600-3 **TYPICAL SIDESLOPE RISER DETAIL**

STATE OF MICHIGAN
TIFFANY D JOHNSON
ENGINEER NO. 49150
LICENSED PROFESSIONAL ENGINEER
9/7/21

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO
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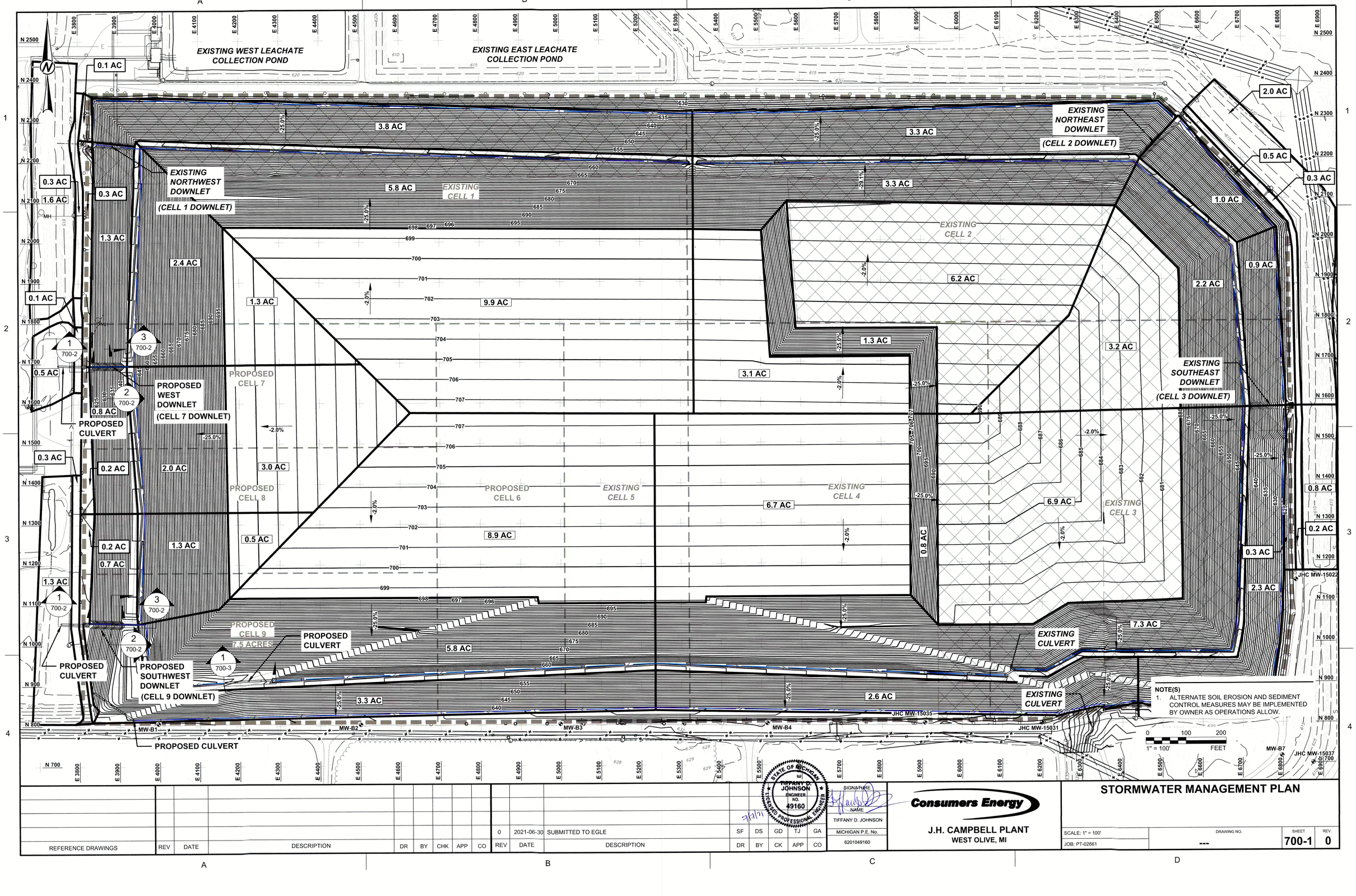
REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO

SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No.: 6201049160

Consumers Energy
J.H. CAMPBELL PLANT
WEST OLIVE, MI

LEACHATE TRANSFER SYSTEM DETAILS

SCALE: NONE
JOB: PT-02661
DRAWING NO.: ---
SHEET: 600-3
REV.: 0



REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	SF	DS	GD	TJ	GA
0	2021-06-30	SUBMITTED TO EGLE					

DR BY CK APP CO

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER NO. 49160
LICENSED PROFESSIONAL ENGINEER
7/1/21

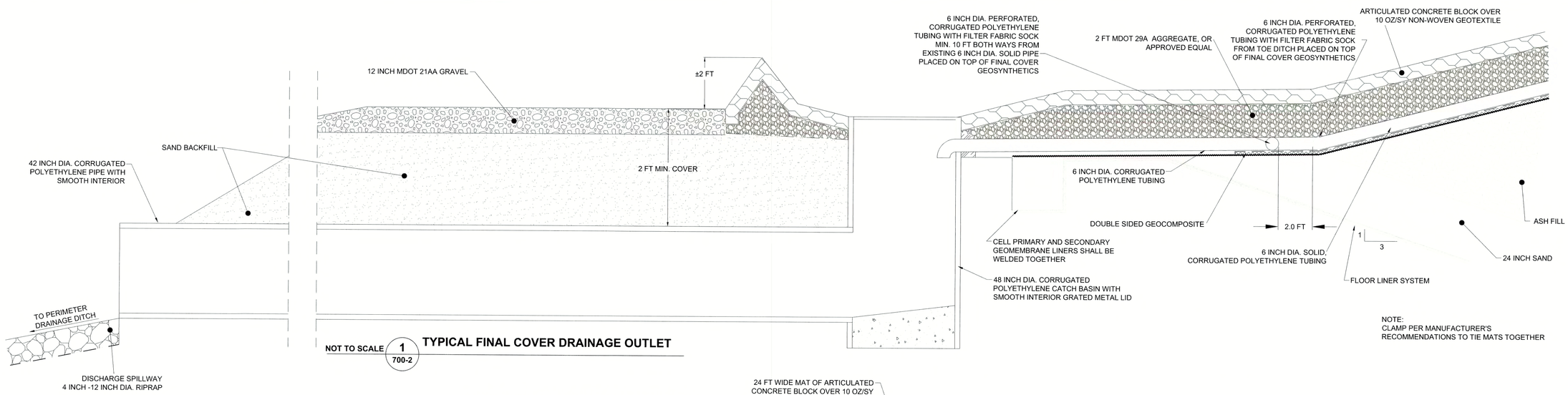
SIGNATURE
NAME
TIFFANY D. JOHNSON
MICHIGAN P.E. No.
6201049160

Consumers Energy

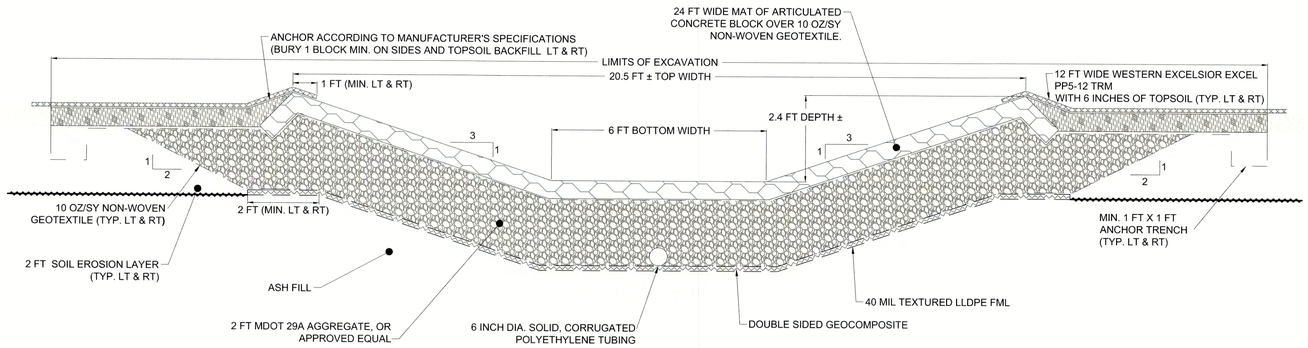
J.H. CAMPBELL PLANT
WEST OLIVE, MI

STORMWATER MANAGEMENT PLAN

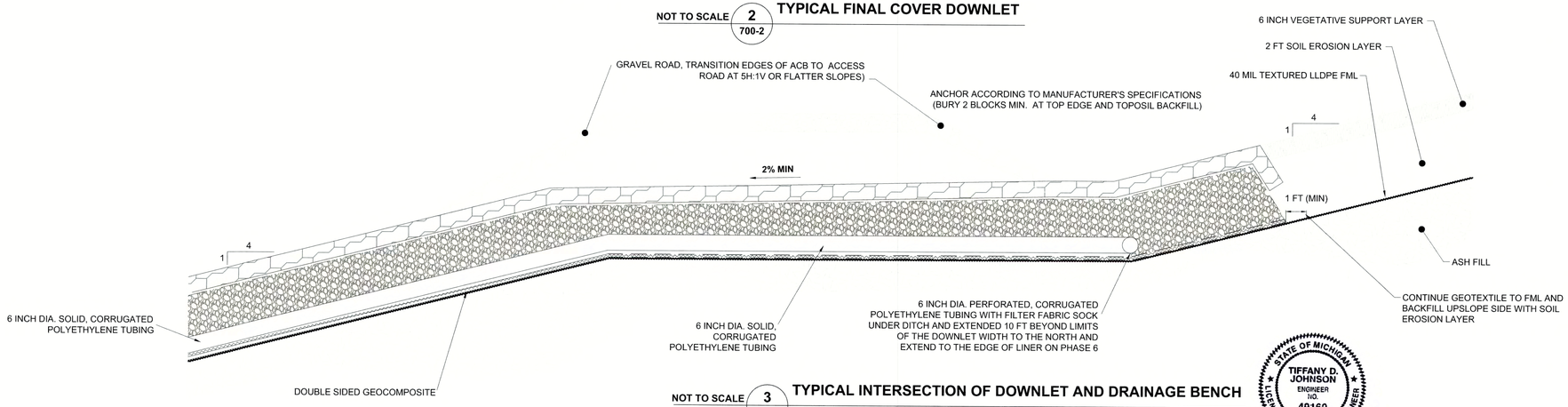
SCALE: 1" = 100'	DRAWING NO.	SHEET	REV.
JOB: PT-02661	---	700-1	0



NOT TO SCALE **1** 700-2 **TYPICAL FINAL COVER DRAINAGE OUTLET**



NOT TO SCALE **2** 700-2 **TYPICAL FINAL COVER DOWNLET**



NOT TO SCALE **3** 700-2 **TYPICAL INTERSECTION OF DOWNLET AND DRAINAGE BENCH**

STATE OF MICHIGAN
TIFFANY D. JOHNSON
ENGINEER
NO. 49160
LICENSED PROFESSIONAL ENGINEER
12/7/21

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	SF	DS	GD	TJ	GA
0	2021-06-30	SUBMITTED TO EGLE					

DR	BY	CK	APP	CO

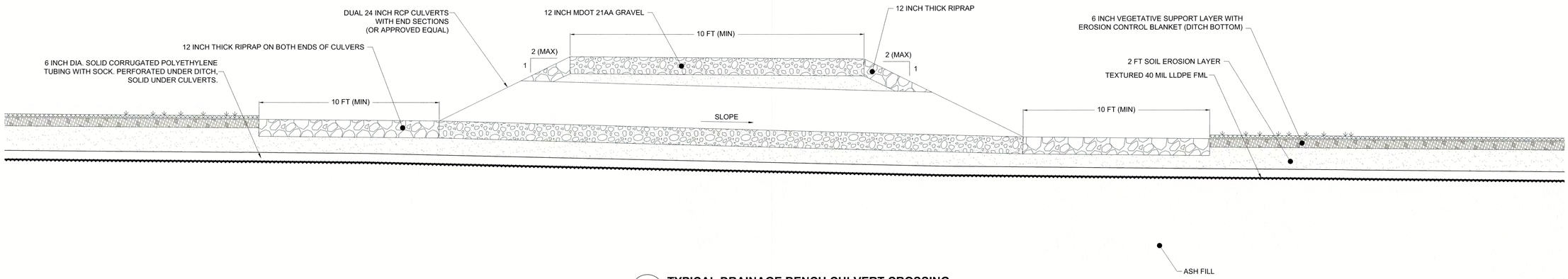
SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

STORMWATER MANAGEMENT DETAILS - SHEET 1

SCALE: NONE	DRAWING NO.	SHEET	REV.
JOB: PT-02661	---	700-2	0



NOT TO SCALE **1** **700-3** **TYPICAL DRAINAGE BENCH CULVERT CROSSING**

STATE OF MICHIGAN
TIFFANY D JOHNSON
ENGINEER
NO. 49160
LICENSED PROFESSIONAL ENGINEER
7/7/21

REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

SIGNATURE

NAME: TIFFANY D. JOHNSON

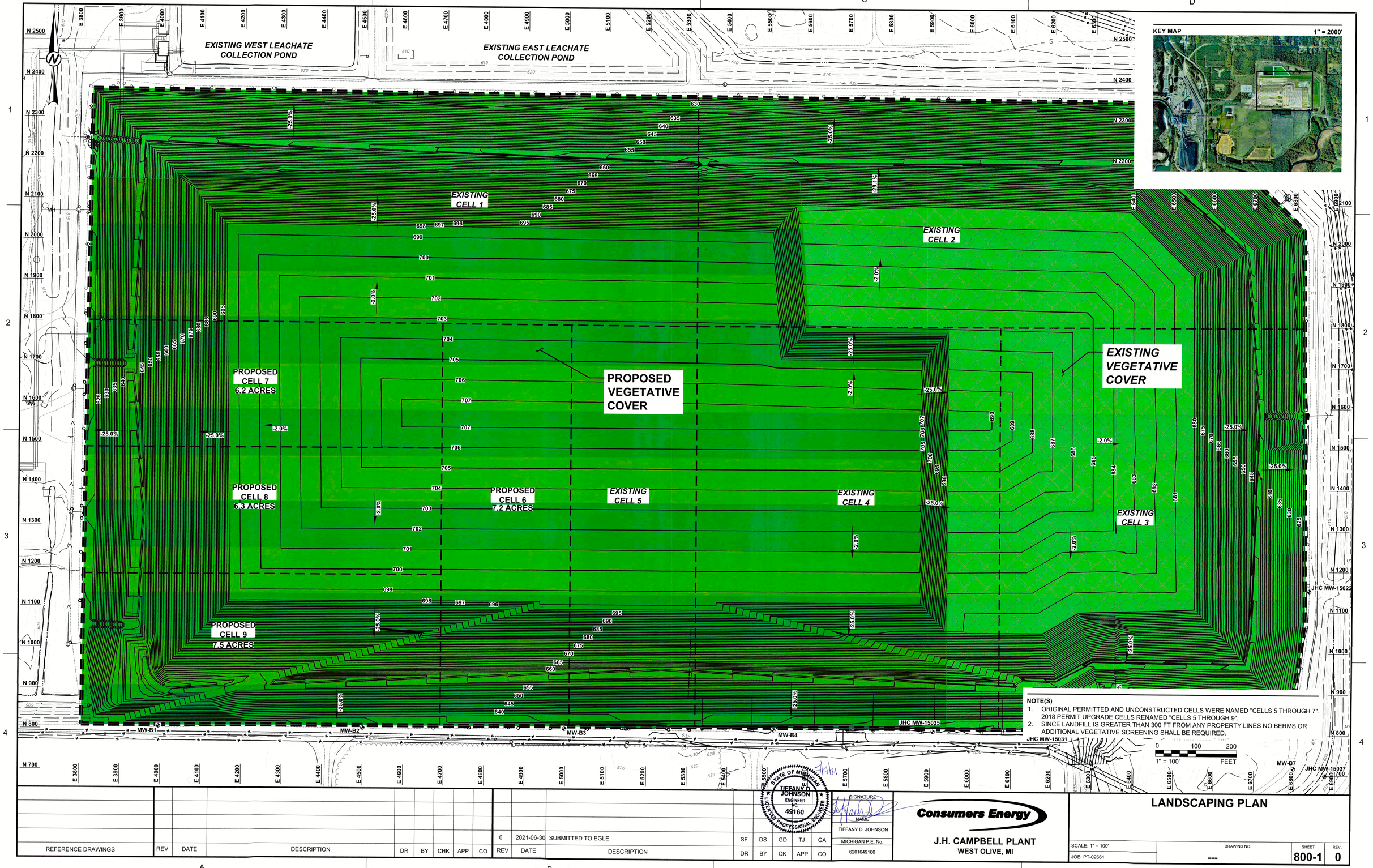
MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

STORMWATER MANAGEMENT DETAILS - SHEET 2

SCALE: NONE	DRAWING NO.	SHEET	REV.
JOB: PT-02661	---	700-3	0



REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DR	BY	CHK	APP	CO

REV	DATE	DESCRIPTION	DR	BY	CK	APP	CO
0	2021-06-30	SUBMITTED TO EGLE	SF	DS	GD	TJ	GA

STATE OF MICHIGAN — TIFFANY D JOHNSON — ENGINEER NO. 49160 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE
NAME: TIFFANY D. JOHNSON
MICHIGAN P.E. No.: 6201049160

Consumers Energy

J.H. CAMPBELL PLANT
WEST OLIVE, MI

LANDSCAPING PLAN

SCALE: 1" = 100'
JOB: PT-02661
DRAWING NO.: ---
SHEET: 800-1
REV.: 0