MANHATTAN LOCAL PROTECTION PROJECT
FEASIBILITY STUDY
MANHATTAN, KANSAS
(Manhattan Levee)

(Section 216 Review of Completed Civil Works)

Project Maps Appendix
August 2014   Final Feasibility Report
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As the Corps of Engineers planning process is dynamic and responsive to public and stakeholder input, it is entirely possible that the concept(s)/levels may change markedly as more information becomes available. Federal and agency policies governing development of Civil Works planning studies are also subject to change. This document/memo does not necessarily represent the perspective of higher review levels within the agencies involved or the Executive Branch of the Federal Government.
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Existing Features 1993 Flood

FOR INFORMATION ONLY

Legend

**Legend**

- Vegetation
- Bodys of Water
- Shoreline
- Existing Structures
- Levee Structures
- Occurrence Point
- Levee Event
- Manhattan Levee Unit

City of MANHATTAN

MANHATTAN AVE PUMPING STATION

BILLY COUNTY

KOTATAMITE PUMPING STATION

KANSAS CITY SOUTHSIDE PUMPING STATION (WATER)

CITY OF MANHATTAN LEVEE UNIT (WATER)

Tuttle Creek Dam and Reservoir, approximately 3 miles

Kansas River

Big Blue River

POYNTZ AVE PUMPING STATION

OLY BYPASS PUMPING STATION (NON-FED)

MANHATTAN AVE PUMPING STATION (WATER)

BORROW

MANHATTAN LEVEE UNIT

Current Conditions

- Levee
- Borrow
- Stoplog Gap
- County Boundary
- KS_river_miles
- Datum: NAD 83

Existing Features

- Corrections
- Additions

Users should refer corrections, additions, and comments for improving this product to:

U.S. Army Corps of Engineers,

Kansas City, Missouri, 64106

601 East 12th, Room 527,

Levee Unit

For information only

Path: K:\\proj\projoor\Manhattan\evan\evan\evan\evan\BaseMap_Existing.mxd L:\AM\1763 HRE 08 Jul 2014
Inundation Existing Conditions @ 0.33% ACE event With No Levee Raise
Inundation @ 0.33% ACE event
With Plan 3
Levee Raise
Inundation
Existing Conditions
@ 0.2% ACE event
With No
Levee Raise
Inundation
@ 0.2% ACE event
With Plan 4
Levee Raise
Plan 5

0.33%: Station 100+00 to 107+00
(Raised Berm)

- Strip top soil
- Minimum Berm thickness at levee toe 5 ft
- Minimum Berm thickness at Berm toe 2 ft
- 36 inch diameter bar screen
- Fully penetrating approx. 40 ft

0.33%: Station 110+00 to 120+00
(Raised Berm)

- Strip top soil
- Minimum Berm thickness at levee toe 5 ft
- Minimum Berm thickness at Berm toe 2 ft
- 36 inch diameter bar screen
- Fully penetrating approx. 40 ft

0.33%: Station 165+00 to 172+00
(Raised Berm)

- Strip top soil
- Minimum Berm thickness at levee toe 5 ft
- Minimum Berm thickness at Berm toe 2 ft
- 36 inch diameter bar screen
- Fully penetrating approx. 40 ft

0.33%: Station 173+00 to 180+00
(Raised Berm)

- Strip top soil
- Minimum Berm thickness at levee toe 5 ft
- Minimum Berm thickness at Berm toe 2 ft
- 36 inch diameter bar screen
- Fully penetrating approx. 40 ft

- Berm width = 200 ft
- Berm toe = 2 ft
- Construct Sand drain
- Min berm thickness at levee toe 5 ft
- Compact 6 inch levee crest aggregate
- Raise levee
- Construct 3 inch levee crest aggregate
- Construct Sand drain

0.33%: Station 180+00 to 187+00
(Raised Berm)

- Strip top soil
- Minimum Berm thickness at levee toe 5 ft
- Minimum Berm thickness at Berm toe 2 ft
- 36 inch diameter bar screen
- Fully penetrating approx. 40 ft
- 36” Water Line
- Raise 3’

- Land affected by Channel Widening & Ridges
- Alterations
- Channel Widening

- Station 212+70
  - Cable relocation
  - 36” Water Line
  - Raise 3

- Station 227+00
  - 8” Gas Line
  - Raise 3

- Replace Gate wells at stations
  - 14+78, 62+20, 89+83, 161+00, and 269+50

- Full pipe replacement at stations
  - 163+00 and 269+50

- Emergency Control Structure (ECS)
  - Required during construction

- 8 Relief wells
- 36 inch diameter bar screen
- 8 inch diameter riser screen
- Strip top soil
- Minimum Berm thickness at levee toe 5 ft
- Minimum Berm thickness at Berm toe 2 ft
- 36 inch diameter bar screen
- Fully penetrating approx. 40 ft

- Station 232-28
  - Water Line
  - Raise 3

- Station 240+50
  - 8” Gas Line
  - Raise 3

- Raise sanitary sewer manholes 4’ within berm area

- Replace power poles 8’ within berm area

- See geotech features and levee raise extents on sheet no. 10

City of MANHATTAN

Upsream terminus tie-back feature

Users should refer corrections, additions, and amendments for accuracy on the document.
Due to landside development,
Constraints & construct relief wells
And collector ditch
Station 64+00 to 97+00

Minimum ponding elevation 1015 ft.
Maintain minimum ponding elevation
(O&M manual update)
Station 40+00 to 51+00

Replace a gatewell at Sta. 62+20
Emergency Control Structure (ECS)
Required during construction
Replace gatewell at Sta. 89+83
Emergency Control Structure (ECS)
Required during construction

Due to landside development
Constraints, construct relief wells
And collector ditch
Station 64+00 to 97+00
Due to railroad constraints,
Construct relief wells and collector ditch
Station 110+00 to 120+00

Due to landside development constraints,
Construct relief wells and Collector ditch
Station 64+00 to 97+00

Photography Date: 2010
Due to railroad constraints:
Construct relief wells and collector ditch
Station 110+00 to 120+00

Construct underseepage berm
Station 120+00 to 137+00

Raise sanitary sewer manholes 4\" within berm area

Raise power poles 8\" within berm area

Construct levee raise
Station 131+00 to 149+00
Construct levee raise and Landside toe embankment sand drain
Station 173+50 to 265+70

Construct underwater berm and levee raise
Station 185+12 to 193+50

Construct landside toe embankment sand drain
Station 170+00 to 173+50

Replace gatevalve and Full pipe replacement at Stn 153+00
Emergency Control Structure (ECS) Required during construction

Construct riverside levee raise
Station 145+00 to 163+00
Make necessary adjustments to outlet at Station 155+00

Levee Projects
Water Lines
Natural Gas Lines
Storm Sewer Lines
Underground Electrical & Light
Aerial Electrical & Light

Key
- Trees
- Beve and Marker
- Roads
- Railroads
- Temporary Road Base Placement
- Permits
- City Boundary
- Old Phase
- Proposed Scouring Step
- Proposed Levee Extension
- Existing U/S Features
- Road
- City
- Pipe
- Storm Drain Lines
- Existing Storm/Stormwater Ditches
- Communication Structure
- Electrical Poles
- Buildings
- Existing Levee Features
- Levee
- Sandbag Gap
- Snow Plow
- 130+00
- 260+00

Station 163+00 to 165+12
Construct levee raise
Station 131+00 to 149+00
Construct levee raise and landside toe embankment sand drain station 173+50 to 265+70

Station 197+85 Cable relocation

Manhattan Levee
Feasibility Study
Existing Conditions and Reliability Improvements

Key
Proposed Features:
- ...Low Pressure... Gas Line
- ...Cable relocation...
- ...Station 173+50 to 265+70...

Existing LF Features:
- ...Line, Rail Track....
- ...Utility Trenches....
- ...Communication Structures...
- ...Electric Power Lines...

Existing Levee Features:
- ...Parks...
- ...Roads...
- ...Intake Pumps...

Sheet No. 20

Kansas City District, GDS Coordinator, Kansas City, Missouri, 64106

Photography Date: 2010

140+00

110+00

240+00
Construct levee raise and Landside toe embankment sand drain Station 173+50 to 265+70

Landside toe embankment sand drain

Candidate borrow area
Replace gatewell and Full pipe replacement at Sta. 269+50
Emergency Control Structure (ECS) Required during construction
Due to development constraints, Construct relief wells, levee raise and Landside toe embankment and drain Station 265+70 to 272+00

Construct levee raise and Landside toe embankment and drain Station 173+50 to 265+70
Due to development constraints, construct relief wells, levee raise and landslide toe embankment sand drain Station 265+70 to 272+00.

Replace gatewell and full pipe replacement at Sta. 269+50. Emergency Control Structure (ECS) required during construction.

Upstream terminus tie into high ground.
This sheet was adapted from the Operations and Maintenance (O&M) Manual, Flood Protection Project, Manhattan, Kansas, Appendix I, published by the U.S. Army Corps of Engineers, Kansas City District dated 1965. This map was scanned and overlaid onto 2010 aerial photos for use in this study.
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Levee Record Drawings for Reference

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Spatial extent approximately equal to Section 2 Sheet 6 from 1965 record drawings

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