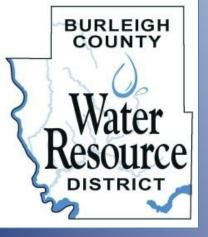


# Burnt Creek Loop Flood Mitigation

#### Burleigh County Water Resource District Public Informational Meeting 5-29-2013 – 5:30 pm



HoustonEngineering Inc.

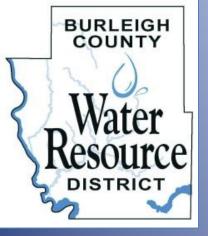


# Sandy River Drive Flood Mitigation

#### Burleigh County Water Resource District Public Informational Meeting 5-29-2013 – 7:00 pm



HoustonEngineering Inc.



# **Meeting Purpose**

Review flood protection measures that have been <u>discussed</u>, those <u>under development</u>, those being <u>constructed</u>, and those to be <u>evaluated</u>.



HoustonEngineering Inc

## Missouri River Flood Protection Ponderosa to Wilderness Cove

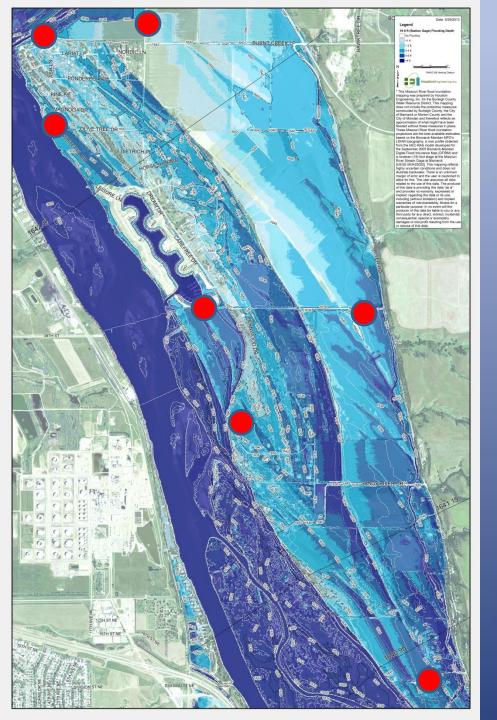
Burnt Creek Loop

Sandy River Drive

Township Rd 10

Wilderness Cove Rd

entury Ave



### Missouri River 2011 Flood Event

#### Floodwater Entry

- ✓ Burnt Creek Overflows
- ✓ Ag Levee Overtopping
- ✓ Olive Tree ROW Ditches
- ✓ Natural low areas along river
- ✓ Misty Waters Overflow
- ✓ Backwaters
  - ✓ Culvert Restrictions
  - ✓ Function of Time (slow)

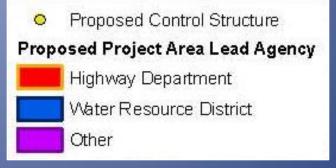








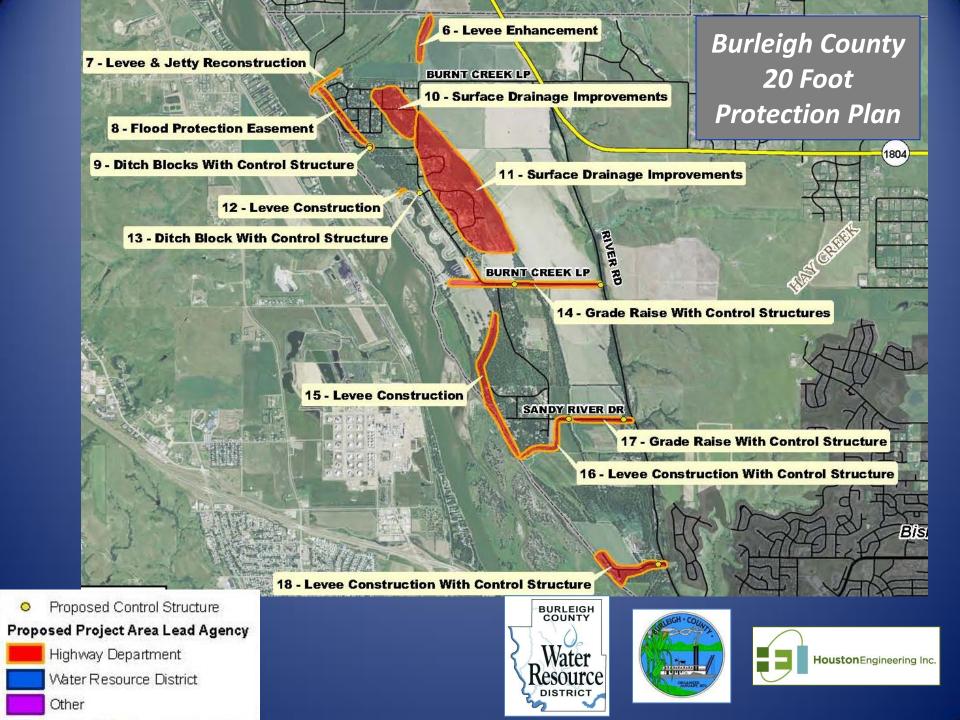
Burleigh County 20 Foot Protection Plan North Side Measures Initial Proposals









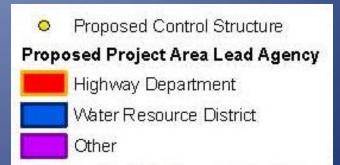




#### Burleigh County 20 Foot Protection Plan

#14 – Burnt Creek Loop Grade Raise (2013) Cost ~ \$1.5 Million
#17 -Sandy River Drive Grade Raise (2014) Cost ~ 1.0 Million

Construction Update from County Engineer







#### **Protection Measures**

-1640 -1640 - 1640 - 16°1640

1640

1640

1640

1636

REE DR34

PONDEROSA

MAGNOLIA DR

PINE AV

38TH ST

1642

NORDIC LN

Burnt Creek Loop Grade Raise
 Olive Tree – Approach Controls
 Northern Overflows –Temporary

BOGEYDR

This Missouri River flood inundation mapping was prepared by Houston Engineering, Inc. for the Burleigh County Water Resource District. This mapping does not include the protective measures constructed by Burleigh County, the City of Bismarck or Morton County and the City of Mandan and therefore reflects an approximation of what might have been flooded without these measures in place These Missouri River flood inundation projections are the best available estimate based on the Bismarck-Mandan MPO's LIDAR topography, a river profile obtained from the HEC-RAS model developed for the September 2005 Bismarck-Mandan Digital Flood Insurance Map (DFIRM) and a sixteen (16) foot stage at the Missouri River Stream Gage at Bismarck [USGS 063425000]. This mapping reflects highly uncertain conditions and does not illustrate backwater. There is an unknown margin of error and the user is cautioned to allow for this. The user assumes all risks related to the use of this data. The producer of this data is providing this data "as is" and provides no warranty, expressed or implied, regarding the data or its use, including (without limitation) and implied warranties of merchantability, fitness for a particular purpose. In no event will the producer of this data be liable to you or any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting from the use or misuse of this data.

Date: 5/29/2013

\*NAVD 88 Vertical Datum

Legend

< 1 ft 1-2 ft 2-4 ft 4-6 ft

BURNT C

NW

No Flooding

16.0 ft (Station Gage) Flooding Depth

**Burnt Creek Loop** 

### Stage 16 Feet

#### **Protection Measures**

1640

1640 BURNT CREEK-LP

1642

Alberton

1644

REE DR 164

PINE A

38TH ST

AGNOLIA DE

SUSTIN CA

NORDIC LN

DIETRICH P

1642

Burnt Creek Loop Grade Raise
Olive Tree – Approach Controls
Northern Overflows –Temporary

1640



Date: 5/29/2013

NAVD 88 Vertical Datu

BO

Legend

1-2 ft

4-6 ft

No Flooding

19.0 ft (Station Gage) Flooding Depth

HAWKTREE DI

**Burnt Creek Loop** 

NER

#### Stage 19 Feet

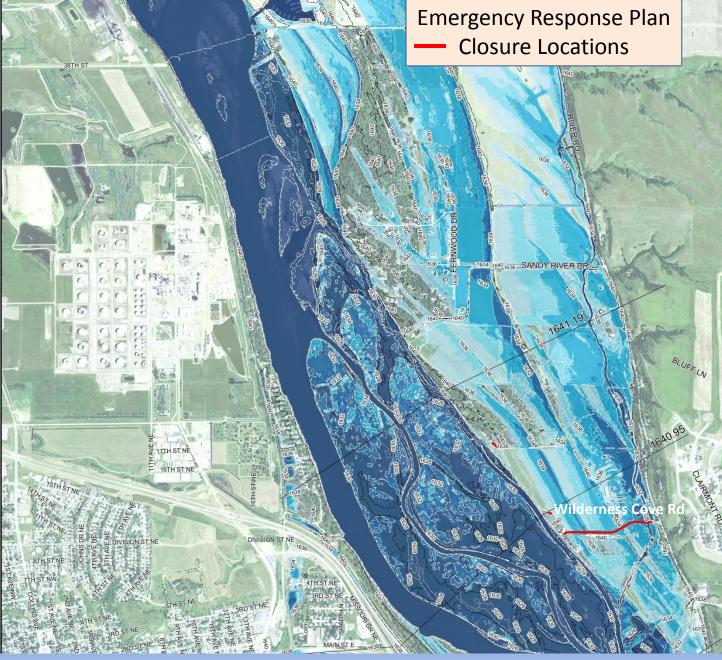
### Sandy River Drive Protection South of Burnt Boat Loop

- Passive Flood Protection (Non Structural)
- Develop Emergency Response Plan
  - Identify Required Points of Closure
  - Identify Actions Required at Various River Stages
  - Identify & Quantify Required Resources
  - Local Project Sponsor (Residents)
  - Burleigh County's Role (Emergency Management Plan)
  - BCWRD Role (ERP Development)
- Advantage Low Cost
  - Resource Planning (Timing)
  - Material Staging

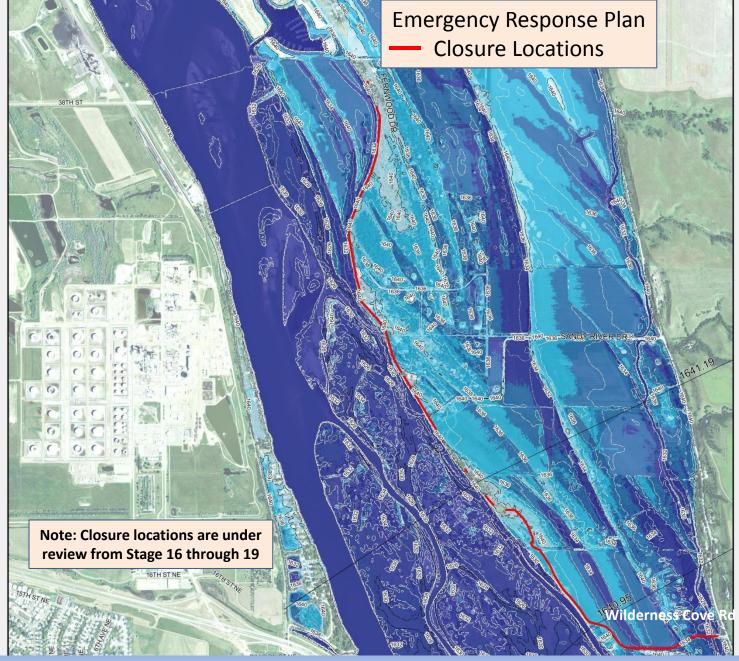








## Stage 16 Feet



## Stage 19 Feet

### Sandy River Drive Protection South of Burnt Creek Loop

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  - BCWRD Role (ERP Development)
- Advantages Low Cost
  - Resource Planning (Timing)
  - Material Staging







## **Floodplain Ordinance Revisions**

- Burleigh County Outside City ETA
  - Special Flood Hazard Area
    - Jurisdictional area is now the 500 year flood boundary
    - Base Flood Elevation = 100 year event
    - Finished floor elevations must be the BFE + 2 feet
    - No basements or crawl spaces below BFE + 2 feet







## Flood Insurance Reform Act of 2012

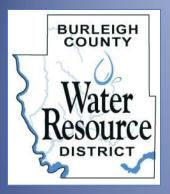
- Changes to flood insurance rates
- Increasing to actuarial rates (full cost)
- Discounted rates for early purchase
- FEMA Fact Sheet Handout

Recommendation to consider insurance











- Please be sure to sign in, if you have not already
- Sheets are available to provide written comments
- Evaluation Sheet provide insight on meeting value
- Comments can also be provided via the BCWRD's web site

www.bcwrd.org

or the Hay Creek Township Site

Haycreektownship.org

- Posted information
  - Power Point Presentation (5-29-2013)



HoustonEngineering Inc.